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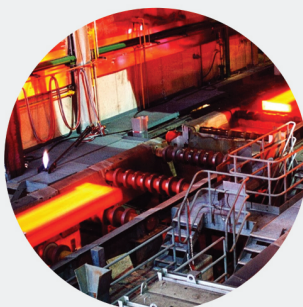
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With record exports last year and consistent high GDP growth, India has emerged as a leading investment option for international firms offering a big domestic market with potential to become a major global manufacturing hub.

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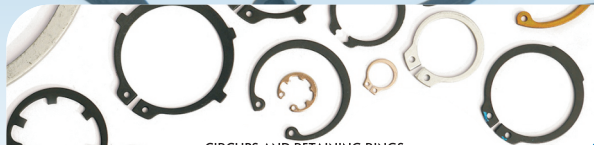
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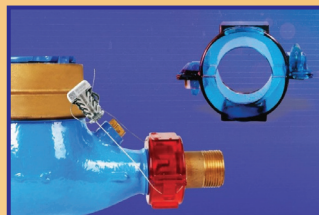
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EDITOR'S NOTE

India: The beacon of growth

India's exports - estimated at \$ 767 billion - for FY 2022-23 recorded a rise of 14.5 per cent over FY22's \$ 669.65 billion. Growth is commendable against the backdrop of slowdown witnessed in the global economy due to issues such as Russia-Ukraine war, surging raw materials & energy prices. While India's merchandise exports grew 6 per cent from \$ 422 billion (in FY22) to \$ 447 billion (in FY23), services exports showed robust growth of 30 per cent reaching \$ 320 billion in FY23.

With India looking to rev up its global play, the government recently unveiled the Foreign Trade Policy 2023 (FTP 2023) with an aim to achieve exports of \$ 2 trillion by 2030 (with goods & services making equal contribution of \$ 1 trillion). FTP makes it clear that India's exports will hinge on the strength of its competitiveness and not on subsidy doles. To raise the efficiency and boost production, Indian companies have been moving toward a more automated and process-driven manufacturing.

Thanks to government initiatives like the National Manufacturing Policy, which aims to raise manufacturing's GDP share to 25 per cent by 2025, and the Production Linked Incentive (PLI) scheme, India's core sectors are at par with international manufacturing standards. In 2022's World Competitiveness Index (released by the Institute of Management Development), India was ranked at the 37th position across the globe (compared to 43rd position previous year). This is the highest jump among all of the Asian economies.

Assuming a 7-8 percent real GDP growth over the next seven years, India's GDP will reach \$ 7.3 trillion by 2030. During this period, as per FTP2023, India's exports are expected to grow from \$ 767 billion to \$ 2 trillion. If this target is achieved, then exports share as a percentage of GDP will also increase from 23 percent to 27 percent - which will be near to the global average of 28.9 per cent and very high compared to developed countries like the US (10.9 per cent), China (20 per cent), and Japan (18.4 percent). Germany is the outlier with 47.0 percent.

India's manufacturing sector represents one of the biggest opportunities to spur economic growth and job creation. To further boost manufacturing, the Government of India (GoI) introduced the Production-Linked Incentive (PLI) scheme in 2020 with an allocation of Rs 1.97 trillion (\$ 27.02 billion) to create global manufacturing champions in 13 sectors (starting FY22). Investments worth Rs 3.5 trillion are expected to be made during FY23 to FY26. Thanks to PLI scheme and the healthy economic growth, India received its highest-ever Foreign Direct Investment (FDI) of \$ 84.84 billion in 2021-22 - showcasing the confidence of overseas investors in the country.

Given India's growth aspirations to reach \$ 35-40 trillion by 2047 and the government's policy to encourage investments for developing modern infrastructure, India is well poised to become the most sought-after manufacturing destination in the world. Clearly, India is a market to be in - currently and in the future.

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Pratap Padode
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Why India is the next big thing in manufacturing

With record exports last year and consistent high GDP growth, India has emerged as a leading investment option for international investors offering a big domestic market with potential to become a major global manufacturing hub. Clearly, India is a market to be in – currently and in the future, says **Rakesh Rao**.

India's exports (goods and services) are likely to touch \$767 billion in the fiscal year 2022-23 (FY23) – up 14.5 per cent compared to \$669.65 billion in FY22. Exports growth is commendable against the backdrop of slowdown witnessed in the global economy due to issues such as Russia-Ukraine war, surging raw materials & energy prices, and, in general, the geopolitical tension between countries. "The global situation was not very much conducive to trade because interest rates have been firmed up and the demand has taken a little bit of a hit. Inflation is very high. Many of the advanced economies are facing a recession-like situation. The geopolitical situation also has affected and added to the uncertainty. Keeping in view global headwinds, this (India's exports in FY23) is a good achievement as many countries have struggled to push their exports in such a difficult situation," said Ajay Sahai, Director-General and Chief Executive Officer, Federation of Indian Export Organisations (FIEO), while speaking to media recently.

\$2 trillion by 2030 (with goods & services making equal contribution of \$1 trillion), India unveiled its Foreign Trade Policy 2023 (FTP2023) on March 31, 2023. Welcoming the FTP2023, **Vinod Aggarwal, President, Society of Indian Automobile Manufacturers (SIAM) and MD & CEO, Volvo Eicher Commercial Vehicles (VECV)**, said, "Auto industry would get substantially benefitted from the new Foreign Trade Policy 2023 with measures such as, Self-Certification of Origin, reduction of threshold for Status Holders of Exporters, enabling Rupee payment and reduced export obligation under EPCG Scheme for electric vehicles. These measures will go a long way in propelling automobile exports from India, as Indian vehicle manufacturers are increasingly focusing on widening their exports footprint."



Vinod Aggarwal,
President, SIAM
and MD &
CEO, VECV

India's rising exports

	2019-20	2020-21	2021-22	2022-23 (Estimated)	2030 (Targeted)
Over All Exports	\$ 526.55 bn	\$ 497.90 bn	\$ 669.65 bn	\$ 767 bn	\$ 2 trn
Goods Exports	\$ 313.36 bn	\$ 291.81 bn	\$ 419.65 bn	\$ 447 bn	\$ 1 trn
Services Exports	\$ 213.19 bn	\$ 206.09 bn	\$ 250 bn	\$ 320 bn	\$ 1 trn

Source: Minister of Commerce and Industry, GoI

India's merchandise goods exports is estimated to be about \$447 billion for FY 23 - recording a growth of 6 per cent over the last year's (FY22) \$422 billion, according to Piyush Goyal, the Minister of Commerce and Industry, government of India (GoI). Service exports were expected to surpass \$320 billion in 2022-23 – witnessing a robust 30 per cent growth over FY22. In FY22, USA, UAE, China, Bangladesh, and the Netherlands were the top five export destinations for India's merchandise goods. In FY23, due to the changed geopolitical scenario, new opportunities had opened up in Russia and Europe for Indian goods.

India's new Foreign Trade Policy

With an ambitious target to achieve exports of

To reach \$2 trillion exports, merchandise and services exports will have to grow annually at 8-9.5 per cent and 16-17 per cent, respectively. "The 2.6-fold jump in exports between 2023 and 2030 charts an annual growth rate of 14.8 per cent. Stepping back, FTA reimagines the India growth story through exports and powers exports built over trust and engagement with entrepreneurs and businesses," stated Gautam Chikermane, VP of Observer Research Foundation (ORF), in her blog.

The new Foreign Trade Policy is duration-free in the sense that there is no end date to the FTP so that the Government of India can respond dynamically and responsively, as and when required. **Sribash Dasmohapatra, Executive Director, Plastics Export**

Advantage India

Some of the macro trends in favour of India are:

- ❑ The fastest growing economy with sustained GDP growth of 7 per cent plus
- ❑ Existence of infrastructure in Tier2/3 cities
- ❑ Government investment schemes like Make in India & smart cities,
- ❑ Large English-speaking talent pool in software, engineering, IT and technical disciplines
- ❑ Many multinationals have made commitments to build plants and hire talent in India for local and global production

Promotion Council (Plexconcil), elaborated, "With the new FTP in place, India will definitely reach its target of \$1 trillion of merchandise exports and \$1 trillion service exports by 2030. The move to make the new FTP a remission-based one (from incentive-based) was widely expected. However, the renewed thrust on emerging areas like e-commerce, streamlining of the SCOMET policy, provision for merchanting trade and encouraging overseas transactions in INR with an aim to make it a global currency are forward looking moves."



Srihash Dasmohapatra,
Executive Director,
Plexconcil

Building manufacturing infrastructure

By 2030, 40 per cent of the Indians will be residing with a need for robust and sustainable infrastructure. As India marches ahead, from airports, high speed rails and metros, infra projects & complex data centers to booming industries, every facet of the country is transforming.

India has emerged as a globally competitive manufacturing hub and the sector represents one of the biggest opportunities to spur economic growth and job creation. To further boost manufacturing, the Govt in 2020 introduced the Production-Linked Incentive (PLI) scheme with an allocation of Rs 1.97 lakh crore (\$27.02 billion) to create global manufacturing champions in 13 sectors (starting FY22). **Hiren Pravin Shah, Executive Director & CEO, RePlus Engitech** (a part of LNJ Bhilwara Group), elaborated, "Depending



Hiren Pravin Shah,
Executive Director & CEO,
RePlus Engitech

on the industry, each PLI programme is valid for a duration of four to six years. These industries include the automotive, drone, electronics, IT hardware, pharmaceutical, medical, and specialty steel markets. The PLI for semiconductor production has even been set at Rs 760 billion (\$9.71 billion), with the goal of making India one of the world's top producers of this crucial component. India will enter a new level thanks to

the semiconductor industry, where the nation will be seen as a manufacturing hub on a worldwide scale."

Ravichandran Purushothaman, President, Danfoss India, added, "The manufacturing value chain is well poised to tap into market opportunities - export growth (export goods worth \$1 trillion by 2030), import localisation, domestic demand, and contract manufacturing. This high-potential value chain can more than double its manufacturing GDP in a few years. The logistics costs are higher in India than our competitor countries like Taiwan, Thailand, Vietnam, Indonesia, and China. The PLI scheme will help us overcome this lag."



Ravichandran Purushothaman,
President,
Danfoss India

Investing in manufacturing

Thanks to PLI scheme and the healthy economic growth, India received its highest-ever FDI (Foreign Direct Investment) of \$84.84 billion in 2021-22 - showcasing the confidence of overseas investors in the country. For example, the Danish multinational company, Danfoss has invested approximately \$300 million in India in the last two years and intends to invest more in the coming years. "If we sustain the current growth momentum of double-digit growth, we will see more investments coming from the Danfoss group. To tap the new opportunities, we have hired over 1,400 people in the technical domain during and after the pandemic to raise the headcount to around 3400. We are geared up to take a quantum leap, as far as Indian operations goes," stated Ravichandran.

Similarly, Delta Electronics Inc, a Taiwanese electronics manufacturing company, is investing \$500 million in India to develop its manufacturing capabilities for catering to exports and domestic markets. The



Niranjan Nayak,
MD, Delta
Electronics India

company considers India as a pillar of its strategic long-term growth plans. **Niranjan Nayak, Managing Director, Delta Electronics India**, explained, "We believe India has a lot of potential and opportunity, and for Delta, we anticipate 20 per cent greater growth in India in 2023.

We are very much aligned with Atmanirbhar Bharat. We are putting a lot of focus on increasing the localisation in India. In the next 1-2 years, we will make India an export hub for Delta worldwide. We wish to accelerate our top-line growth driven by key segments like EV, data centre, and industrial automation, which have abundant potential in India."

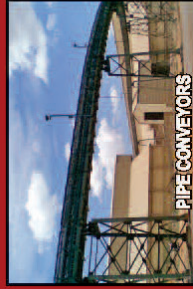
Japanese electrical equipment company Fuji Electric is looking to further invest upto Rs 400 crore in India, over the next four years, to serve more Indian customers with its increased capacity and also explore opportunities to export made-in-India hardware to

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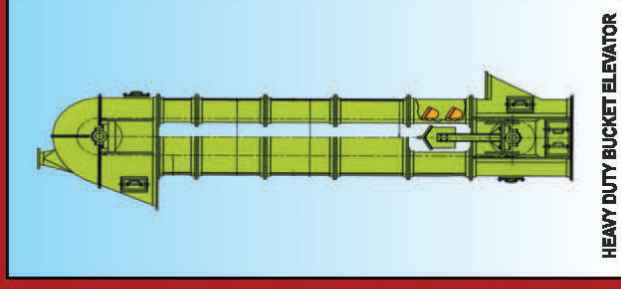
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Impact of PLI on manufacturing industry

The PLI schemes have been instrumental in forging the path ahead for India. The following illustrate a few areas where their presence has made a difference:

- ❑ **Increased investments:** The major spending of the schemes is set to occur over FY 2023 to FY 2026. Investments worth Rs 3.5 lakh crore are expected to be made in this period. As of September 2022, the actual number stood at Rs 41,000 crore.
- ❑ **Growth in manufacturing capacity:** PLI scheme aims to boosting domestic manufacturing capacity and reduce the dependency on imported goods, such as semiconductor chips, as well as have surplus for exports. For example, the scheme for Large Scale Electronics has led to an increase in export of smart phones by 139 per cent over the past three years.
- ❑ **Employment generation:** The potential for job creation through the PLI schemes is estimated to be for around 18-19 million persons. These investments can also stimulate the growth of ancillary industries, thereby creating an end-to-end manufacturing ecosystem.
- ❑ **Competitiveness in the global market:** In 2022's World Competitiveness Index (released by the Institute of Management Development), India was ranked at the 37th position across the globe. The previous year's ranking was at the 43rd position. This is the highest jump among all of the Asian economies. With these measures, it is expected to improve further.

Courtesy: Bhavesh Thakkar, Partner (Tax and Regulatory), Indirect Tax, EY India

South East Asia, Middle East, Africa, Bangladesh, Sri Lanka, among others. **Yosuke Ishizaka, Managing Director, Fuji Electric India**, elaborated, "Large investments are happening in various sectors (in India) generating huge business opportunities. We have already surpassed Rs 1000 crores for the financial year 2022-23 and we are aiming at Rs 1500 crore in annual revenue in India by 2024. This is the fantastic time to be in the Indian market. The Indian economy is growing at a steady pace and the economic fundamentals are in place. The contribution of exports is 2 per cent at the moment but we aim to increase it to 10 per cent in coming years."



Yosuke Ishizaka,
MD, Fuji Electric
India

Banking on India

India is an attractive hub for foreign investors in the manufacturing sector. Several mobile phone, luxury and

automobile brands, among others, have set up or are looking to establish their manufacturing bases in the country. India is a land of opportunities for multinational companies (MNCs). Indian manufacturing sector is also steadily moving toward a more automated and process-driven manufacturing, which is projected to raise the efficiency and boost production.

With the world opting for China Plus One strategy, PLI scheme and other GoI initiatives (for various sectors) have come at the right time with the thought of promotion of exports and attracting the MNCs to set up establishments in India. PLI scheme provides the scope to scale up volumes by manifolds and increase local value-addition; thus, paving the way to create a robust supply chain in India. "India's focus is for Atmanirbhar Bharat – Make in India to serve globally. India is bound to evolve as the country is becoming a China Plus One option for global players. With such measures coming to place, the efficiency of the manufacturing industry will increase and meet global standards, deliver quality products, with safety measures. With adoption of modern technologies like robotics and industrial automation, there would be no constraints in terms of skilled manpower, and the dependency will be reduced to manufacture efficiently and accurately," stated **Sangeet Kumar, Co-founder & CEO, Addverb Technologies** - a global robotics company based out of India.



Sangeet Kumar,
Co-founder &
CEO, Addverb
Technologies

India rising

India's exports have seen tremendous growth over the last two years reaching \$418 billion of manufacturing exports in the fiscal year 2022. With impetus on developing industrial corridors, metros, new airports, high-speed trains and smart cities, India will witness unprecedented growth in manufacturing sector in this decade from 2025. India is well on its way to become most sought-after manufacturing destination in the world and has the potential to export goods worth \$1 trillion by 2030. "Though India contributes 3.1 per cent of GDP, our export contribution to the world has been a mere 1.6 per cent only and looking at the current opportunities, it has immense scope, potential and triggers to grow. By 2028, it is expected that India will reach \$1 trillion of manufacturing exports," stated Niranjan Nayak.

Going by the strong foundation which the government is building in terms of high expenditure for developing modern infrastructure, internationalisation of trade, free trade agreements and growth in exports (goods and services), India's GDP may reach \$35-40 trillion by 2047. So, India clearly is a market to be in – currently and in the future.

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Towards a new paradigm in supply chains: The holistic approach

The 'holistic' supply chain (HSC) is a new development, the next step in the evolution of supply chains. In essence, an HSC is a derisked, potentially high inventory holding alternative to resilient supply chain, says **R Jayaraman**.

As businesses age with time, and technologies overwhelm the practitioner, some things don't change. A manufacturing company has to still buy its raw materials, consumables etc., from either outside or make it in-house. When done inside, it forms a part of the value chain within the corporate boundary. However, if it sources from outside, which is often the case, then the supply chain comes into action. Take, for example, a steel company. Many of them buy iron ore, coal and other minerals from the market. A telecom company buys its cables, the antenna electronics etc., in the market. A car company usually makes the engines in-house, but buys the electronics, mechanicals etc from outside.

Covid gave a big jolt to this rather peaceful looking state of affairs. It brought into focus something which supply chains had not encountered significantly – disruption. To a manufacturing company, disruption is an anathema. Given the fact that system inertia is well known, most manufacturers struggle to keep their lines humming all the time, as a start and stop operation will lead to a lot of waste and cost inefficiencies, due to the 'inertia' effect. Lean manufacturing brought a lot of relief, as it fine tuned the machine operations, so that start and stop can be minimised even while changing products on line. A good example of this is an automobile assembly line, where, Toyota can manufacture three cars of model A, two of B and so on, one after another, continuously. Lean manufacturing was perhaps the first step towards a 'holistic' supply chain or HSC. Lean, when combined with Just In Time (JIT), leads to 'chained' supply chains. Which is to say, the supplier and the buyer are very tightly connected. Any disruptions in any one can affect the other sooner than later.

The 1980's were the years of lean, TQM, high quality manufacturing in large volumes. In this scenario, the western businesses discovered China. Their efforts to practice TQM, lean etc., did not lead to the kind of growth and expansion they were looking for. Moreover, to gain a competitive advantage, they chose cost as one of the key drivers. So started the biggest binge in supply chain history. Large western corporations, like Apple, made a beeline for China, principally. Huge factories were opened in China to cater to the unsatiable demand of goods for western industries. Many Indian companies also started sourcing from China, as the



mass manufacturing in China, coupled with low wages, at least to begin with, made the cost of manufactured goods globally competitive. And so, it came about that many supply chains encompassed China as the fulcrum. And then Covid happened.

In the aftermath of covid, resilient supply chains came to be seen as the key to successful, competitive manufacturing and selling. Accessing markets and manufacturing goods for the markets were found to be seriously dependent on supply chains. There began a scramble for creating 'resilient' supply chains. This is still working itself out, but this new journey in supply chains has been disrupted by developments in IOT, AI, Big Data, 3D printing, 5G and 6G connectivity and data transmittivity – all now being a part of 'Industry 4.0'. With I 4.0, the development of resilient supply chains has taken a new direction. In fact, one could say that the SC is now turned 180° and returning to its origins. The Big Three – Ford, General Motors and Chrysler – were the originators of the 'many suppliers, dispersed suppliers, supplying at the lowest possible cost' syndrome. To keep the cost of their supplies low, they purchased from several suppliers. With the advent of TQM, and Toyota JIT practices, and lean management, this was turned by 180° - have suppliers – have few. If possible, own some or all of these, either fully or partially, keep management control through equity interests. Now, with the 'resilient' supply chain phenomenon, the tide is again turning.



In order to reduce risks, keep the supply chain functioning and keeping costs as low as possible, companies are working to develop alternate suppliers, specially from different geographies. This is a difference, when compared to what the big three did in their early days. And this is the trend which will, going forward, become a feature of all supply chains which are a part of large manufacturing companies' ecosystem. And these are what we call as the 'Holistic Supply Chain' (HSC).

The HSC is a new development, the next step in the evolution of supply chains. The HSC is typically for large manufacturing companies, while also applicable to medium ones too, but, for SME's and MSME's, doesn't make a lot of sense. What are the forces driving the formation of HSC? For one, covid type of interruptions where supplies suddenly dry up due to natural calamities. Although known in the business as a 'Force Majeure' condition, the newness is that, while the FM conditions would last for a few days or weeks, the covid type of interruptions last longer, lead to significant changes in the composition of the SC, seriously affect costs over the medium and long term. Technological and other interventions are not either in place or not even in sight in the near term. There are four features which distinguish a HSC from a Resilient SC (or RSC). HSC is an advancement over RSC.

Firstly, HSCs are geographically dispersed. For example, large manufacturing companies will try to have suppliers located in many geographies, including at-home/ in-house. In a 1994 paper published in the HBR, two Harvard Professors – Gary Pisano and Robert Hayes – had recommended this step. The truth value of this recommendation is now dawning upon the world. They recommended that the USA should always maintain a certain presence in manufacturing, especially R&D and design, apart from running the lines, within the country, even if they have facilities outside.

Widely dispersed supply chains have the disadvantage of cost, but they are the insurance for a risk free operation. The idea should be to develop supply chain centres in select geographies based on cost, quality and political/ other risks. Although the PESTEL analysis in economics has been used for such decisions, it is now imperative that the decisions factor

in the risk factors with greater weight. In India, this has taken the shape of 'Make In India', which has seen a lot of new industries coming up in defence, electronic, cell phone, automotive, pharma and related sectors.

Second, companies should use the concept of 'clusters' in developing the HSC. In India, this idea is not new, industrial areas, special economic zones etc have been around for quite some time. Avadi in TN and Adityapur in Jharkhand are two good examples of how these can provide goods at low cost, speedily with flexibility. This will compensate for the cost increase, to an extent. So, the HSC centres should be located in such areas, as these are already derisked.

Third, high inventories should be held as a hedge against disruptions in the SC. The HSC should have certain designated depots/ warehouses where extra inventory is held, as a risk premium. The choice of such locations should be made considering speed, certainty of supply and limited risks. Ideally, these could be located close to the manufacturing centre.

Fourth, the HSC should follow lean management practices, like, JIT, two or three bin system, etc, for replenishment and ordering, value stream mapping to keep cycle times and throughput times to the minimum. It is imperative that lean practices should now become routine, as these will not only address customer requirements optimally, but also reduce waste, streamline production lines and the entire SC process.

Some companies think that reshoring is a good alternative, but this is fraught with time loss, involve rebuilding time and equipment, rediscovery of technologies and designs which were lost after off-shoring. In a recent study, Goldman Sachs report that onshoring in American companies is going slower than expected. The HSC is therefore a good alternative to install, as the increase in cost of the supply chain can be compensated to a good extent by adopting Industry 4.0 practices.

In essence, an HSC is a derisked, potentially high inventory holding alternative to RSC. It is RSC plus high inventory holding. Naturally, the cost is likely to go up, but, with Industry 4.0 practices, which become mandatory, and lean management, costs can be brought to optimal levels, commensurate with a highly responsive, full service, service-at-all-times supply chain.

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About the author:



R Jayaraman is the Head, Capstone Projects, at Bhavan's S P Jain Institute of Management & Research (SPJIMR). He has worked in several capacities, including Tata Steel, for over 30 years. He has authored over 60 papers in academic

and techno economic journals in India and abroad. Jayaraman is a qualified and trained Malcolm Baldrige and EFQM Business Model Lead Assessor.



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“India will end up with a good engineering exports figure in FY23”

After registering a record growth in 2021-22, India's engineering goods exports are witnessing headwinds in 2023 due to the Russia-Ukraine war which has resulted in sluggish global demand. With China Plus One policy of major global companies presenting a huge opportunity for India, the government is working on capacity building exercise. In this interview with **Pratap Padode**, Founder & Editor-in-Chief of Asapp Info Global Group (the publisher of Industrial Products Finder magazine), **Arun Kumar Garodia, Chairman, EEPC India**, elaborates on the prevailing global merchandise trade business and growth prospects for Indian engineering sector.

After a strong export performance in 2021-22, how exports scenario looks like in 2022-23?

The year 2021-22 closed with very high exports which were beyond anybody's imagination. In the engineering sector, we were given a target of \$107 billion whereas we achieved \$112 billion - a great achievement by the engineering sector. Though it is said that it was because of the price rise (which of course can be a one of the reasons), there were other factors response for the growth as well. This year, though exports have been down, it is still good (given the prevailing situation due to the Russia Ukraine war).

By December 2022, we have already achieved \$80 billion of exports. Our target for 2022-23 is \$127 billion and we are falling short of \$47 billion, which we expect to cover in January-March quarter. The budget has given a lot of fillip for manufacturing which will give a boost to the domestic trade and lead to good export rate in the near future. The 300 million tonne steel production in India, which we aim to produce, will be ultimately consumed by the growing industrial and infrastructure sectors in India. It will also lead to export, especially of steel related engineering segments, which have been at the forefront in boosting exports last year.

But, the Russia-Ukraine war has caused massive disruption. With countries across the globe witnessing sluggish GDP growth, the demand will be affected.

What are your views on this year's budget?

The Budget 2023 is good and seems to be very growth oriented. It will help in a lot of employment generation and provide opportunities for new industries



to emerge. It is good for industries as a lot of fund is dedicated for MSMEs, which are one of the important contributors in the country. Today, almost half of the merchandise exports from India come from MSMEs. Our finance minister, Nirmala Sitharaman, this time has focused on the green energy, greenfield projects and decarbonisation in the budget which is good for long-term growth. Unexpectedly, the personal taxation has also been reduced to a great extent and we can find the budget to be very vibrant this time.

The government has set ambitious targets for the industries. For instance, we have been given a target of

making 300 million tonnes of steel per annum by 2030, which will take us to a big platform and bring in vibrancy in the country. In the budget 2023-24, the government has announced capital expenditure (capex) of Rs10 trillion which is a welcome step. Other than defense projects, 50 new airports, highway and express way projects are coming up today. New gas pipelines are also being installed all over the country which is going to give a big fillip to the industry as the power sector is becoming too expensive.

The Economic Survey has warned of a slowdown in exports due to sluggish global demand in the year. How can we mitigate this challenge?

Today, global communities are interconnected. India and China - two of the vibrant economies and the world's most populated countries - have big consumer markets. With India surpassing China in population, it will provide growth opportunity as we will have more room to grow. Our Prime Minister says *Vasudhaiva Kutumbakam* (translates 'world is one family'). So why not act on that basis, probably tomorrow we will be

serving the whole world and prospering.

Russia Ukraine war is a very unfortunate crisis for the mankind. Nobody thought it is going to carry on for a long time. We hope that people come to their senses and call off this and once the war is over, we can see huge opportunities coming up. Today, due to the war, Europe is going through a big energy crisis and businesses in the region are facing huge problems. The demand in European countries and the UK is at a low ebb today. Their industries have been closing down and there is less demand for raw materials or intermediary products. We hope to see good days in the coming months.

There have been a lot of talks about China One Policy. Are you seeing the impact of it on India's engineering sector?

There are two parts to it. Firstly, China Plus One policy has given us enormous opportunities and the whole world is looking at India now. Secondly, to take advantage of this situation, it is very important for India to develop capacities to fulfill increasing requirements of the world. Earlier, all the developed countries were buying from China in a very big way. Now they have given us an opportunity to perform that role and by building world class capacity India can become the factory of the world in the future.

India has concluded FTAs with UAE and Australia, and is holding talks with UK, EU and other countries for preferential market access. How will these help engineering goods exports?

FTAs will be beneficial for engineering exports from India. UAE has been importing a lot of items from China and CIS countries. But, with FTA, they have started to come to India to get their products developed. Currently, the global market is weak, but once normalcy returns, we are going to get back into the game and our business will really go up. Similarly, with Australia, FTA (Australia-India Economic Cooperation and Trade Agreement) has been effective from December 29, 2022, but we are yet to see the results. I am sure once Indian cargoes start reaching Australia, the buyers will find more interest in Indian products. We are getting good inquiries from Australia and very soon we will see the real results of this. FTAs with the UK and Canada could be signed anytime this year.

To raise the competitiveness of the Indian industries, adoption of modern manufacturing technologies, including Industry 4.0 is critical. How is EEPC is future ready for it?

With industry 4.0, a lot of new things are coming in like robotics, drones, artificial intelligence (AI), etc. Renewable is also the order of the day. EEPC has two technology centers - one in Bangalore and another in Kolkata. We are trying to help our members to equip them with technologies as per their requirement. We have signed MoUs with government's CSIR institutes

like Advanced Materials and Processes Research Institute (AMPRI), Bhopal and Central Mechanical Engineering Research Institute (CMERI), Durgapur, and National Metallurgical Laboratory (NML), Jamshedpur.

Through these tie ups with institutes; we are trying to help our members by equipping them with modern manufacturing technologies. For example, foundries generate a lot of slag, which creates disposal problem. We are working with these institutes to find ways to use slags for developing new products. There has been positive development and we have made some trial runs. Hopefully, within a one year, we expect to come up with a solution which will produce some industrial product with slag waste. This will be a big boost to the industry.

In addition to traditional export destinations, which other markets can India explore to enhance its share in the global merchandise trade?

The Commerce Minister is very supportive and has been encouraging us to look at exploring new global markets. We have made good progress in countries in South East Asia, Latin America, Africa and CIS. But due to the prevailing global slowdown and other issues, we have not seen buoyancy in these regions. I am sure once normalcy returns, you will see the business trickling down.

Are you seeing benefits of PLI scheme on the engineering exports?

Government of India announced the Production Linked Incentive (PLI) scheme to encourage local manufacturing of products, where are currently being imported into the country. As PLI schemes are targeting at import-dependent sectors, many new factories are expected to come up giving a boost not just to the domestic market but also to exports. So this will create huge opportunity for exports of engineering goods.

Finally, what is the outlook for India's engineering goods exports market for 2022-23 and 2023-24?

We have already achieved \$80 billion turnover by December 2022. I'm very much hopeful that we will end up this financial year with a good figure. For next year, we are devising new plan which will be a big game changer for the engineering sector. Because of the government's PLI schemes for multiple sectors, new production sites are coming up, which will require raw materials and components. Also, Europe will be back into the game once the Russia-Ukraine war is settled. As far as CIS countries are concerned, they had lot of logistic issues, which we are trying to sort out with help of the government of India. We are hopeful of a strong growth in 2023-24.



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“Bilateral trade between India and Germany was € 23.5 bn in FY21–22”

German Engineering Federation (VDMA) is one of the largest network organisations for the machinery and equipment manufacturing industry in Germany and Europe. With its establishment in India, VDMA India Services Pvt Ltd is acting as a bridgehead between German and Indian industries. In this interview **Rajesh Nath, Managing Director, VDMA India** shares the significance of Indo-German economic relations and forthcoming alliances between the countries to grow trade opportunities.

In february 2023, Germany Chancellor, Olaf Scholz, was in India. How significant was his visit for trade relations between the two countries given the present global geo-political situation?

German Chancellor, Olaf Scholz's stressed his personal involvement in order to boost the two-way economy via the free trade agreement proposed between India and EU. He talked about further augmenting Indo-German trade ties. The vision document unveiled reaffirmed enhanced collaborations in terms of technological innovations, along with the Sustainable Development Partnership (GSDP), encouraging positive and proactive roles of the governments, institutions, academia and industry on both sides.

Indo-German economic interdependence has increased in recent times- over 1,600 German companies provided more than 400,000 jobs in India. At the same time, over 200 Indian companies had registered offices in Germany, investing more than EUR 6.5 billion in the country. The Indian market continues to show strong growth and offers significant prospects for cooperation with Germany, including in the areas of infrastructure, energy, and environmental and high technology.

As our Prime Minister rightly said, due to the Indian campaigns like 'Make in India', 'AtmaNirbhar Bharat', etc, a plethora of opportunities are opening up in almost every sector in the country and the interest shown by German companies in the same is an absolute encouragement. In a statement to media, Scholz highlighted the countries' common aims, such as fighting climate change, and the importance of cooperation between democracies.

Germany is one of India's most important trade partners. Which are some of the key



areas for the two countries to work together to take trade partnership to the next level?

Germany is indeed India's most important trading partner with a total bilateral trade between the two countries standing at EUR 23.5 billion during the financial year 2021–22, while it was valued at EUR 20.57 billion in FY 2020–21. Sustainability, climate change and transition to a low-carbon economy are key areas of the India-Germany bilateral relations. Potential areas of developing trade relations furthermore would be vehicle manufacturing, electrical engineering and electronics and textiles to name a few.

India is talking about Atmanirbhar Bharat. What are the key challenges to achieve this goal? How can German technology companies help India to solve these challenges and support India's growth story?

The Indian government had announced a package of INR 20 lakh Crores (EUR 230.5 billion), under the Atmanirbhar Bharat Abhiyan. However, there are some major challenges for the country in order to achieve said goal. There are issues related to the liquidity of the aforementioned INR 20 lakh crore package. The lockdown during the Covid 19 times has consequently reduced the gross demand giving impetus to the need of a fiscal stimulus, along with the lack of backward and forward linkages, the burgeoning fiscal deficit and difficulty mobilising the finances adding up to the same.

German Technology companies can definitely prove to be an aid in supporting India's growth in this context – India cannot achieve self-reliance by lagging in the technology ladder; rather, it must become a leader technology which can be scalable and platforms with a wide ranging applicability, across manufacturing to services to delivery of public goods and such

advanced technology could ensure easy access to these technologies even for the smaller players, through incentives and subsidies. There is also the cost angle that should not look at the industry in isolation but consider the point of view of a wider economy.

What are the emerging trends that you witness in the Indian manufacturing industry?

The Indian government wants to increase manufacturing's share in GDP from 18 per cent at present to 25 per cent in 2030. India is focusing on new markets, new business models, opportunities and the potential offered by adopting a culture of innovation. The focus is on the trends surrounding Industry 4.0, Industrial Internet of Things (IIoT), digital business models, predictive maintenance, machine learning, connectivity, interoperability and artificial intelligence, augmented and virtual reality applications. IT and software engineering are key factors in production technology today, while data mining represents an opportunity for new business models. With the onset of the digital India concept, automation in India is accelerating. Human-robot collaboration in particular is in high demand. Cobots already account for 7.5 per cent of all installed industrial robots in India – and the trend is rising.

Given India's commitment to growth and decarbonisation efforts, how can India-Germany trade potential be nurtured further?

India is right on this threshold with its industrial investment plans and therefore has great opportunities to catapult its industry into a zero-carbon future right away. Sustainability is certainly one of the most pressing global challenges of our time. Accordingly, India has also presented a strategy for climate neutrality. If the rethinking of production technology is to be successful, sustainability must be taken into account early on in the planning of investments.

Germany, under an Indo-German partnership for green and sustainable development, has committed to providing additional development assistance of €10 billion till 2030 to support India's green growth plans. This assistance will be provided to India under the Joint Declaration of Intent (JDI) on green and sustainable development partnership signed between both nations. India has aimed high, decarbonising 50 per cent of its energy by 2030. Innovative policies to avoid dependency on fossil fuels and ensure long-term sustainability are required. In addition to this, investment in R&D has to be scaled up. Domestic manufacturing also needs appropriate incentives to become Aatmanirbhar Bharat. Energy is at the heart of economic development and perhaps no country is more challenged than India as it strives to create a better life for its entire population.



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NEWS SNIPPET

Lokesh Machines sets up factory to make defence, aerospace components in Hyderabad

Lokesh Machines, a Hyderabad-based machine tool manufacturer, set up a new subsidiary for the production of defence and aerospace components. The first phase of the company's investment in Hyderabad's greenfield facility will be more than Rs100 crore, which will be used to manufacture guns and their accessories. As exports start in the future, this investment will be expanded even more.

Dr G Satheesh Reddy, Scientific Adviser to the Defence Minister of India and former chairman, DRDO, inaugurated the new manufacturing division at the Outer Suburb of Hyderabad, Medchal, Telangana. With the help of the Indian Army and ARDE (a division of DRDO), the business



Dr G Satheesh Reddy, Scientific Adviser to Raksha Mantri and Former Chairman of DRDO at the inauguration ceremony

has successfully built small guns.

The MHA and other Military have thoroughly tested these weapons. The trials have been successful, and it has been suggested further purchase and exploitation.

It is essential that a progressive country like India be self-sufficient to face various threats. The defence and aerospace division has been set up to explore contributions in security, said M Srinivas, Director, Lokesh Machines. The company is also creating a vendor near its facility

to develop an ecosystem of vendors and handhold them for developing precision parts for the small arms. The new facility's commercial production is anticipated to start soon.

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“We are focusing on developing new position switching devices”

Since 1977, Bohmen Industries is an acclaimed manufacturer and supplier of a wide variety of electromechanical limit switches and allied assemblies. The company is having heavy growth plans in the coming years. This interview with **Abhishek Bohra, Partner, Bohmen Industries** gives more insights into the company's operations and its outlook on the Indian manufacturing market.

Kindly brief us about your company

Bohmen Industries is a home-grown industrial manufacturing firm which was started in 1979. We offer a wide variety of electromechanical switching devices which find application across the length and breadth of manufacturing industries. Our products cater to most generic applications as well as special precision manufacturing activities. Our plant is spread over 4000 ft² with all relevant test facilities in-house. Some of the most important industries we cater to are material handling, railway, rolling stock, elevators, cranes, escalator, textile equipment, special purpose, machines, robotic equipment, boilers, sterilisers, autoclaves, pharmaceutical equipment, diagnostic equipment, signalling systems, panel doors, security systems, fire, protection, systems, and many more.



How is the demand for your products? What is driving this demand?

Position-switching devices, popularly known as limit switches, are virtually a must in any semi- or fully-automatic machine tool. In the last decade, with India emerging as an important global manufacturing hub, and Indian equipment, getting exported across the world, our products have an increasing demand in the market. Equally so, the Indian Industrial consumers are looking for reliable and consistent quality from the vendors. We stand to gain more traction due to our focus on providing reliable products as per internationally accepted standards.

How are you planning to step up R&D for launching new products and solutions?

Our research and development efforts are focused towards introducing every possible switching solution to our customers. 3D prototyping enables us to make rapid design studies and tests before going into actual manufacturing. Our long history in polymers is tapped into to explore the possibilities of re-engineering existing

designs so as to allow economy without compromising performance. We plan to foray into products specifically meant for hazardous area applications very soon.

What are your plans to grow Bohmen Industries' export business?

We are exporting our products to South East Asia, Gulf countries and Latin America. We are exploring these countries to secure long-term partner customers as well as trade representatives. We are open to business from the rest of the world as well. We seek to increase our exports to about 15 per cent by end of 2024, which is currently at two per cent of the total turnover.

How is India a potential market for global manufacturers?

India has always been a very big market for all types of products. The very size of our population creates valuable opportunities to be seized at every stage of the supply chain. Global manufacturers bring aesthetically advanced products which are bound to attract the industry. However, as the eventual markets are now international, they need to compete very hard on the price front, since Indian brands are doing that very well. Aesthetics is now an important factor for Indian brands as well and their focused efforts are paying off.

What are your growth plans for Bohmen Industries?

We are presently observing healthy growth post Covid 19 and hope to be able to maintain that momentum going into 2024. Infrastructure is driving consumption. We are bolstering our manufacturing team to cater to the increasing demands. Our product focus is on position-switching devices, with a conscious attempt to increase the available choices.



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“We aim to create substantial space for EAPL products globally”

Electronic Automation Pvt Ltd (EAPL) started its entry into electronic field with timers almost four decades ago. Today, through its collaboration with Switzerland-based Kruger + Co Ltd, EAPL has established itself as a strong player in the manufacturing of standard electronic instruments. In this interview, **Shreedhar Kamat, Co-Founder & Chairman of EAPL Group**, offers insight into India's electronic manufacturing sector and contribution of EAPL in making the industrial evolution in the country more meaningful and swifter.

How has Electronic Automation evolved since its inception in 1985?

EAPL, headquartered in Bangalore, had its humble beginning in 1985. It was the brainchild of Late Shri Madhav Kamat who instituted this venture with espousing support from Mr Christian Kruger of Switzerland. Because of its partnership with Kruger + Co Ltd, Switzerland, EAPL is part and parcel of a culture associated with Swiss perfection.

EAPL started its entry into electronic field with timers almost four decades ago and has created a meaningful space for itself in the Indian electronic industry scenario. We take pride in saying, “We monitor ‘time’ in India”.

EAPL has focused on manufacturing quality products at an affordable cost. The company has always sought to invent devices of high viability matched with sales at low prices; ensuing from critically controlled and standardised quality-oriented manufacturing methods, to and assuring a high caliber product. Additionally, the company is approved by product safety regulators viz CSA, CE and UL for complying with their regulated safety norms.

The company offers a wide range of electronic products that have proven to be useful across different industries. EAPL has successfully garnered a consumer base in both small and large scale industries based in over 50 cities throughout India, and in a few GCC countries.

EAPL's product portfolio includes:

- ❑ Electronic timers catering to various electrical applications through different functional features for varied time ranges and voltages in analog and digital formats
- ❑ Programmable annunciators, which are generally used in industries and utilities to annunciate the fault status visually and audibly at any given time
- ❑ Energy meters to monitor different parameters in



- any given electrical system
- ❑ Temperature controllers which are used to indicate and control process temperature of different equipments in the industrial sector
- ❑ Protection relays to protect the equipment/system from specified power un-healthiness in the system
- ❑ Digital time switches to switch OFF any equipment, appliances, with reference to real time

EAPL is spread over a vast expanse of 25000 sq ft with an infrastructure capable of manufacturing more than 500,000 units annually. EAPL is one

of the earliest establishments in Bangalore to be certified under ISO 9001:2008 by UL (Underwriters Laboratory, USA) and has currently upgraded to ISO 9001:2015, ISO 45001:2018 (Occupational, Health and Safety) and ISO 14001:2015 (Environmental System).

The organisation has also adopted the SAP B1 as a part of enterprise resource management and fact-based decision making. At present, the production units are equipped with the latest SMT technology.

The Quality Control (QC) department compliments these efforts by executing timely quality checks starting from raw materials to different stages of manufacturing and concluding with the final product (IS5834/IEC guidelines). The organisation also has its very own tool room and plastic injection moulding facility which uses UL graded material and consistently abides by quality and safety protocol. Moreover, the in-house EMI/EMC lab strives to strengthen the validation process in assuring finesse in the quality of products.

What are the USPs of EAPL's products? What do you bring to the table for its customers?

EAPL products are known for its quality, reliability and unique features. They are designed and manufactured by following international standards viz. UL, CSA & IEC,

providing confidence of usage to our customers. EAPL products are unique for its compactness, wide operating voltage and ease of operation. It explains our marketing manifesto which is "If a product fails during warranty period, we replace or refund". This has also indirectly helped us maintain our high quality rating with a failure rate <50 PPM.

How is the electronic instruments market in India? What are the key demand drivers of this market?

The Indian economy is growing quite rapidly among other important markets in the world. Technological advancements have been rapid even in the automation industry which has positively influenced research and production of electronic products. Additionally, the government initiatives such as Make in India and introduction of the GST have proven to be useful in promoting small manufacturing industries. There has been an increase in overall demand for electronic products.



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What are the challenges faced by electronic instrument manufacturers in India? What are probable solutions for these challenges?

As an industry, we do have to continuously inform ourselves of new innovations and research that is happening with respect to the kind of products we deal with. Accordingly, we have to ensure that our raw material inventory is updated and that the products we make are useful, effective, and efficient.

The process of product design doesn't halt; there is always room for development. As a manufacturing unit that manages all production in-house, the reality is that monitoring the inflow of raw materials to our facility is quite challenging and requires constant attention so that we are able to meet the product quality and demand. Moreover, recycling and disposal are aspects that the electronics industry needs to look toward more closely.

Are the spiraling raw material prices hurting the industry?

The industry is still coping with the challenges that were posed by the Covid-19 pandemic especially in terms of procuring raw materials, producing products in

time, and maintaining sales. The increasing costs of raw materials has invited tough negotiations with vendors, dealers and clients especially since overall costs have increased mainly due to rising costs of electronic components, packaging and transportation.

From your experience, are you seeing the benefits of Make in India initiatives on the ground?

Electronic Automation was honoured with 'Make In India' award from India Today group in 2016 for our contribution in the electronics sector. Incidentally, EAPL is one of the promoters of the ESDM facility "Lahari" which is coming up at Mysore. It is an initiative of Make in India. Lahari is the first in kind initiative supported by the Government of India, Government of Karnataka and

Indian industry to go operational, with the goal of promoting and evaluating new ideas, new designs and new products, while gaining access

to worldwide markets for the emerging electronic industry in India.

There is a strong industry-wide conviction and consensus that Lahari (ESDM) can meet the electronic industry's end-to-end needs like testing, inspection, certification and market access. Mission is to work in the interest of the Indian electronic industry to help it to be compliant, to create new products and new markets. Through its advanced technologies and partnership, Lahari will provide all technological needs of the industry such as testing, certification for all global standards, skill development, product design consultation as end-to end services. The facility will help EAPL to get the products certified for international standards and thereby promoting exports.

What are the emerging trends in the industry?

The growth in the electronic industry in India is driven by the growth in specific segments. The growth of each segment is, in turn, dependent on the dynamics of the existing ecosystem, the number of organised players, the level of imports, and the government's focus on the respective segment.

The industrial electronics segment has been growing on account of the increasing automation of manufacturing facilities coupled with an increasing focus on harnessing renewable energy.

Could you please brief us about some of EAPL's recently launched products? Any new products in the offing?

EAPL has launched many products recently. Some of them are variants of the existing design and others are with new concepts.

- ❑ In annunciators, the newly developed "M3" series has unique features of cascading of windows as

EAPL started its entry into electronic field with timers almost 4 decades ago and has created a meaningful space for itself in the Indian electronic industry scenario. We take pride in saying, "We monitor 'time' in India".

per customer needs. This is available from 1D to 6D to support up to 48 windows. These are unique by itself with less depth, reliable plastics, easily replaceable windows and RS485 communications serving the industries in FAULT annunciation panels successfully.

- ❑ ETR Series of timers: EAPL launched sleek timers in 17.5 mm enclosure which are compact and competitive and also meets the requirements of less depth control panel.
- ❑ PD Series of relays: Anti-pumping relay device that is used in many applications for auxiliary needs by our panel manufacturing customers.
- ❑ SPP-T auto switch: A power monitoring device mainly for the irrigation and agriculture sector to protect submersible pumps

What are growth plans for the future?

With the existing infrastructure, EAPL can double the production and there is a possibility to expand further with the available space, facilities and technology. We are soon planning to introduce IoT (Internet Of Things) features in energy meter, annunciators, etc. We believe that markets are gradually shifting from RS485 mod-bus to WiFi/LORA/GSM connectivity for remote monitoring of parameters. We will also be introducing some specific application based products

relating to the electric vehicle (EV) segment. Additionally, Electronic Automation will be stepping into the "Building Automation" sector by promoting combination switching timer with real time operations and time switches with multiple relays operating on real time for industrial sector and street light applications. Power saving is the theme behind these products.

Some more products lined up for designing are simplified version of App-based PLC with ease of program, Extension of IoT to other controller products, electric vehicle charging and control, series of control relays for DG/AC protection in export market, multifunction timer up to 100 hrs, automatic power factor controller, intelligent annunciator in compact size.

Recently, our products were certified for 'CE' (Conforming to European standards) by third party evaluator - TUV Germany. EAPL products are being exported indirectly by many of our machine manufacturing customers to different parts of the world. Over the last 3-4 years, EAPL has established a dealership network in the Gulf region and will be further expanding to Europe, Africa and South East Asian countries in the coming years to create a substantial space for EAPL products in the world market. **IPF**



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“Poor security is no security” is the philosophy of Safcon

Safcon Seals Pvt Ltd is an indicative and barrier seals manufacturer. **Rajesh Kumar Banka, Managing Director, Safcon Seals** is in security seal business for over 25 years. In this interview, Banka tells about his innovations with security seals during the past two decades, adding details about patented products and export operations of the company. Indian market offers great opportunities but is very competitive, he adds sharing about the growth plans of Safcon.

Kindly brief us about your company.

Safcon Seals Pvt Ltd is an innovator and a professional manufacturer of tamper evident, tamper resistant, tamper proof security seals based in the Asia Pacific region, for over twenty five years. We have our manufacturing facilities in Kolkata and offer a wide range of security seals. We currently serve the sectors: Airline services, electric distribution utilities, electric meters OEMs, transport/logistics/shipping, bulk drugs, pharmaceutical companies, chemical/agrochemical companies, postal/mail/courier services, petroleum companies, banks/carriers of money and valuables, water and gas utilities, retail/departmental stores, testing laboratories, hotels' hospitality/amusement parks, hospitals/clinical waste management.

Safcon Seals Private Limited is the first ISO 9001:2015 certified security seal company in India. Most of our products are compliant to RoHS and are CE compliant. We started manufacturing security seals when hardly anyone understood the security seal market. We were the first to develop and innovate polycarbonate meter security seals two decades ago and replaced the lead seals, which were used for ages to protect the electric meters, playing the statutory role of meter seals with over 50-60 per cent AT&C loss.

Today most of the specification of meter security seal of all electric distribution utilities is derived from our Metgrip Anchor type meter security seals. Our innovation has entirely changed electric meter sealing system of our country. We have a wide range of electric meter seals. Our all meter security seals are patented and complies with the requirement of Central Electricity Authority. In electric utilities, patented seal does not mean monopoly but it means exclusive security seals which are not available in market easily and hence counterfeiters cannot procure it for malpractice to replace the meter seal with duplicate/fake seal.



We supply our meter seals to many electric distribution companies from East to West and North to South. Besides utilities, we also supply our meter seals to meter OEMs.

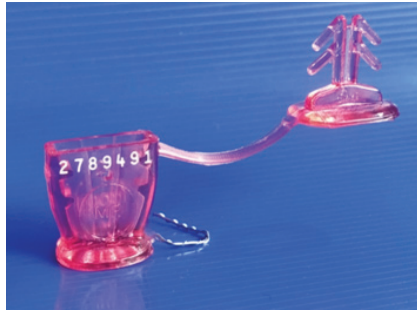
In addition to the electric meter seals, we manufacture and supply bolt container seals, truck tarpaulin seals, cargo security seals, railway wagon seals, bag security seals, fiber drum seals, and other plastic security seals for versatile applications. Cash carrying vehicle seals, cash bag seals, postal bag/courier bags seals, tote box seals, travel suitcase seals, hospitals seals, cash ATM seals, security label seals etc also make into our product portfolio. In addition to

our standard products, we also develop custom security seals to meet customers' specific requirements.

What factors are driving demands for your products?

Security has indeed become a global concern in today's world. The importance of security seal has also seen a slow and gradual acceptance as the best solution. For example, a decade ago, the need for anti-virus software was considered optional for PCs, but today it has become a necessity. Similarly people were aware of security seals but were not using them as it was deemed unnecessary. But with rising costs, theft and adulteration, security seals are now considered essential.

The demand of security seals is increasing in every industry sector. Be it food and beverages industry, pharmaceuticals, chemicals, steel, cement, and coal, as adulteration and theft are increasing in every field. There is huge demand being generated in electric utilities all over the world as smart meters/prepaid are being installed to replace the traditional meters. In India itself, government of India has sanctioned fund to install 250 million smart meters in next three years. In developed countries, smart meters/prepaid are being



Metgrip polycarbonate security seal

installed by water and gas utilities. In banking sector, there is huge demand for security seals for cash carrying vehicles and ATMs. In airline sector, there is an increase in traffic which has resulted into

more flights and requirement of security seals for passenger baggage security. Because of the recent pandemic and increase of infection, hospitals are now more alert when disposing clinical waste and that requires security seals as well.

Beside these sectors, security seals have been in use for bulk liquid tankers, oil/petroleum tankers, trucks, wagons, chemical drums, containers, retail departmental stores for decades. Security seals are very effective to protect revenue to safeguard utility meters and/or to protect goods from adulteration and/or theft in transit, provided that the right kind of security seal are used and procured from the reliable and professional manufacturers.

What are the USPs of your products and solutions?

We are the only company in India that does not just sell security seals, but also offers advice on how to implement most effective seal control system. After analysis of the protection level required, the most suitable and cost-effective security seal for the application is

recommended. Factors considered in analysis includes: the value of the goods/ revenue to be protected, nature of the product, past theft practice, possible method of tampering, period of protection, etc.

As mentioned, we were the first to introduce polycarbonate meter security seal for electric meter application, we have now introduced new generation meter security seals with DPM barcode directly engraved on the seal itself for reading seal number and details digitally. This provides for easy tracking, reading, recording and verification of the seals.

We, at Safcon, always believe in zero defect products. Our product quality is guaranteed for the performance.



High security Revguard barcoded meter seal

FUMES & DUST CONTROL



We manufacture and export a wide range of Fume Extractors, Mist Collectors, Dust Collectors, Self-balanced Extractor Arms, Electrostatic Filters, Ventilation Systems, Clean Room Systems working on the Electrostatic principle under the brand name of Fumekiller™, Dustkiller™ and DustBag™.

These Electrostatic Filters use about 40% less Electrical Power, are many times washable and re-usable, can capture fine pollutants such as mist, fumes and smoke, work at about 3 mm WG pressure drop, are modular and are stackable upto 1,00,000 CMH.

Typical applications in industry are:

- Engineering** : Removal of oil mist or coolant mist for CNC grinders, lathes and machining centres. Capture of fine powders from graphite, cast iron, bakelite grinding operations. Elimination of smoke and fumes from welding, annealing, forging etc.
- Electronics** : Capture of fumes from soldering, cleaning and for clean rooms.
- Pharmaceuticals** : Capture of fumes from tableting, capsuling, filling and for clean rooms.
- Textiles** : Capture of particulates in ventilation and humidification systems.
- Hospitals** : Capture of dust, bacteria in operation theatres and for clean rooms.
- General** : For clean rooms upto class 1,00,000 without changing existing blower capacity of air-conditioning system.

Powertech Pollution Controls Pvt. Ltd.

22/3, Rajanna Building, Munikrishnappa Road, Ramachandrapura, Jalahalli Post, Bangalore - 560 013, Karnataka, India.

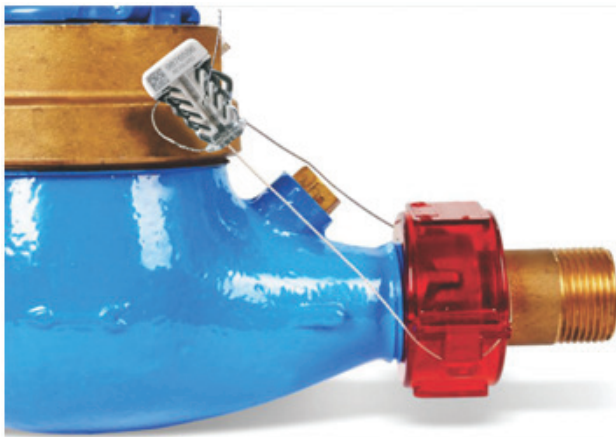
Landline: +91-080 23452156, 23452256, 23452445, Cell : + 91 9986048891, 9845572990, 9844132772, 7066083083

E-mail: philipthomas@powertechindia.com, philip@powertechpollutioncontrols.co.in | Website: www.powertechindia.com

We are proud to mention here that in past 25 years we have not received any complain from any of our customers. We never compromise on quality and we have only one standard that is Safcon Standards. Our philosophy is based on "Poor Security is No Security". We have security seal solution for every application.

How are you planning to step up R&D for launches new products and solutions? Are you going to launch any new application in 2023?

We already have R&D set up for past 20 years and we launch new products on regular basis. We, at Safcon, believe that no security seal is final. The counterfeiters regularly discover new ways to defeat a seal for malpractice and on getting such feedbacks from our users, we continuously update our existing products. In many cases, we develop altogether a new security seal to provide peace of mind to our customers.

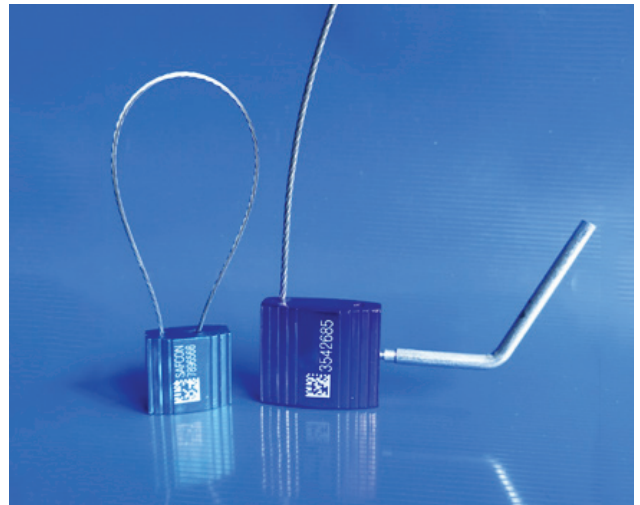


Tamper resistant water meter connection nut lock

We have recently launched few new products, namely, Tamper Resistant Security seal with metal insert locking mechanism, anti-spin container seals, fiber drum security seal, water meter seal, gas meter seal, digitally readable RevGuard Meter Security seal with barcode and encrypted code, High Security Cable Security Seal for railway wagons, Improved Security Label seal etc to suit various applications. We have developed a new security seal for Smart Meters that is under process of patent application and will launch the same soon in market.

Kindly brief us about your exports business?

We are exporting globally our security seals for past 20 years. Though we make security seal for all applications but we are experts and specialised in Utility meter seals. We export our meter security seals to Europe, Australia, South East Asia, Middle East, and Africa. Safcon Security Seal solutions are used in many other industry sectors, by some of the world's most recognised brands across Europe, America, Australia South East Asia and the Middle East.



Twentyfour Sentry cable security seal

What are your plans to further grow your exports business in the coming years?

We have maintained our export turnover in 2022 as we were having more demands in domestic market last year. We are expanding our production capacity and have planned to increase our export business at least by 30-40 per cent in next two years.

Are you looking to collaborate with global companies to bring in their products into India?

We are market leader in our field in India. We have plans to launch new advanced range of security seal in near future. Our R&D is going on and if required we may collaborate with global company for technological advanced product range.

How is India as a potential market for global manufacturers?

India has huge potential market but it is a very competitive market. Though scope is there but survival of globally renowned company is a bit difficult. As mentioned earlier there are huge opportunities in Indian market particularly in energy field but survival is only possible for the fittest.

What are your growth plans for the company?

We are ahead of the curve in our market research to create new markets and new customers. Due to our strong R&D and innovative application ideas, we regularly launch new products and will continue doing the same. We are in process of expanding our production capacity. We have plans for diversification but it has been delayed due to pandemic and hence we have been concentrating on existing business and opportunities.

For more details about Safcon, contact
Rajesh Kumar Banka on email
rajesh@safcon.co.in



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Industry, govt & society, Hannover Messe: An opportune stage for all

The Hannover Messe, one of the largest trade shows in the world, will be held from April 17 to 21 this year. The trade fair has been a key occasion for industrial developments for years. The event will be held at the Hanover Fairground in Hanover with over 4,000 companies from different industries signed up to exhibit their products and solutions. Germany will serve as the host country with Indonesia being the partner country for the event.

From the digitalisation and automation of complex production processes and the use of hydrogen to power factories and the use of software to register and reduce carbon footprints, the world's premier trade fair Hannover Messe offers a holistic picture. With the lead theme 'Industrial Transformation – Making the Difference', the event is hosted in Hannover, Germany from April 17 to 21, 2023 complemented by a series of conferences and forums.

"Carbon-neutral production, artificial intelligence, hydrogen technologies, energy management and Industry 4.0 are the overarching themes of Hannover Messe 2023," said Dr Jochen Köckler, Chairman of the managing board of the Deutsche Messe group of companies. "Only the interplay of these technologies will make it possible to sustainably safeguard our prosperity and at the same time drive climate protection forward."

Around 4,000 companies from the mechanical engineering, electrical and digital industries as well as the energy sector will showcase solutions for production and the energy supply of the future. The exhibiting companies include global tech corporations such as Amazon Web Services, Microsoft, Google, SAP, Siemens, Bosch, NOKIA, ServiceNow and Schneider Electric, as well as medium-sized technology leaders like Beckhoff, Festo, Harting, ifm, Pepperl+Fuchs, Phoenix Contact, Rittal and SEW. Renowned research institutes such as Fraunhofer or the KIT (Karlsruhe Institute of Technology) as well as more than 300 startups promise cutting-edge technologies and completely new business models. "Approaches to solutions for each of the current global challenges will be on display at Hannover Messe," assured Köckler.

Indonesia is the partner country at the industrial fair. Hannover Messe will be inaugurated by German Chancellor Olaf Scholz and Indonesian President Joko Widodo at the Hanover Fairground.

Manufacturing X and Industry 4.0

In the era of digitisation, data becomes the new fuel. To tap the full potential of Industry 4.0, a large amount of data is required that can be accessed by all companies involved in the value creation chain.



One such new interconnected data ecosystem is Manufacturing X. This vision of a sovereign and secure data platform is being driven forward by the industry associations BDI, VDMA and ZVEI, among others.

The first steps towards implementing Manufacturing X will be presented at Hannover Messe in cooperation with the German Federal Ministry of Economic Affairs and Climate Action. "The aim is to preserve the independence of companies. They should not lose access to the customer interface, but they also need to tap the potential of the platform economy," told Köckler.

Generative AI, finding ways to industries

Artificial intelligence (AI) is becoming a necessity for industries. In addition to optimising processes, the manufacturing industry is increasingly relying on AI in simulation and product development. With this, generative AI will also find its way into the industry. Systems such as ChatGPT or DALL-E support text generation, programming and design. On the subject of AI, Hannover Messe offers a comprehensive range of visitor tours, forums and presentations of AI tools and use cases from exhibitors.

"In the future, it is quite conceivable that AI will design a machine and the human will then check which adjustments are necessary for real operation. This saves time and offers considerable potential in view of the prevailing shortage of skilled workers," said Köckler.



Smart energy monitoring solutions

"Most industrial users are still hardly aware of the numerous hidden forms of consumption," told Köckler. The interaction between software and machines creates considerable energy-saving potential. Hannover Messe exhibitors are also providing smart energy monitoring solutions to identify and optimise energy consumption at the machine level, thereby reducing the carbon footprint. "Industry consumes around 45 per cent of the electricity in Germany. The solutions presented by the exhibiting companies can make an important contribution to a significant increase in energy efficiency in the production realm," he added.

Unregulated motors in pumps, fans, compressors or machines are still part of everyday life in many factories. Without intelligent control technology and the interaction of electrical engineering and IT, energy efficiency improvements are scarcely feasible.

Sustainable hopes with Hydrogen as an energy source

Green hydrogen can free up from dependence on fossil energy and reduce carbon emissions. It is at rage right now and industries are looking to make it in more use. Meanwhile, the German Federal Office for Economic Affairs and Climate Protection describes hydrogen as a key energy carrier that is essential for the long-term success of the energy transition and climate protection. Still, it is a challenging task to produce hydrogen as it is a complex and expensive process. Moreover, the questions of availability, transport and large-scale storage are still needed to be resolved.

"More than 500 companies at Hannover Messe will be showcasing solutions for the use of hydrogen in industry. This makes Hannover the world's most important and largest platform covering hydrogen themes," said Köckler. Users from industry and political decision-makers can get a holistic picture of the potential of this energy carrier in Hannover and see the course that needs to be set on the road to a hydrogen-based industry.

Promoting young talent

With the Your Future initiative, Hannover Messe and its partners have developed a new concept aimed

primarily at graduating classes, students and young professionals. Hannover Messe offers them a central discussion platform as well as guided tours taking them to interested exhibitors.

WomenPower Career Congress

The WomenPower Career Congress is one of the most successful networking and discussion events for women for diversity, career advancement, sustainability and new working environments. The congress is held annually as part of Hannover Messe and is primarily aimed at participants from the STEM sector. This year the session follows the theme 'Celebrate Diversity'.

In addition to the program of lectures, panel discussions and workshops, WomenPower offers companies, associations, networks, organisations and trainers the opportunity to find out about career prospects, studies, coaching and mentoring services, and other labour policy topics and trends in the accompanying exposition.

Indonesia - partner country

Indonesia, the largest economic power in the ASEAN region, is appearing as the partner country at Hannover Messe 2023. Their motto "Making Indonesia 4.0" aims to make the country one of the ten largest economies in the world by the year 2030. Renewable energies are expected to account for some 51.6 per cent of total electricity generation by then. At Hannover Messe, this up-and-coming nation is presenting itself as a reliable partner for companies across the globe.

Witness the future for manufacturing industries

The list of challenges industries are facing is long - climate change, energy shortages, disrupted supply chains and a shortage of skilled labour. The solution to these challenges lies in the targeted use of technology. At the same time, governments need to get their economic policy right. Hannover Messe 2023 covers not only technologies for connected, climate-neutral industries, but also provides a forum for a global policy discussion among industry, government, science and social representatives. Sectors such as automation, motion and drives, digital ecosystems, energy solutions, engineered parts and solutions, future hubs, compressed air and vacuum and global business and markets will be on display during the exhibition.

The key topics include CO₂-neutral production, energy management, Industry 4.0, artificial intelligence and machine learning, and hydrogen and fuel cells. The event serves as an important platform for everyone including industrialists, and the government. With its aims to focus on the issues like sustainable development, climate change and clean energy fuel, it serves as a significant mark in environmental development as well.



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“India has been an important exhibitor at Hannover Messe”

Climate change will take the centre stage this year at Hannover Messe, one of the world's largest industrial trade fairs, tells **Dr Jochen Köckler, CEO and Chairman of the Managing Board Deutsche Messe AG**, in this interview with Pratap Padode, Founder & Editor-in-Chief of Asapp Info Global Group (the publisher of Industrial Products Finder magazine). Hannover Messe, to be held from April 17 to 21, 2023, will showcase innovative and competitive solutions to manufacturers and industry personnel. Climate change is an issue to be faced and solved by today's generation and Hannover Messe will be presenting a bigger picture on climate change, states Dr Köckler.

How do you assess the current industry trends?

What is really new in Germany, Europe and worldwide is that we are realising the need to do something against climate change. Industries have to give answers on the amount of energy and resources that they are using. For me, climate change is something that our generation has to face and solve. Not only politicians but everybody (including industries) understands that they have to deliver on this topic. Therefore, at Hannover Messe, we are focusing on climate change as the core issue and deliver solutions to the challenge. Solutions are never delivered by politicians or society, but they are developed by innovators. While there are challenges related to environment issues, the industry is also increasingly incorporating digital solutions to bring in efficiency across their value chain.

Hannover Messe is representing a big picture about climate change and general industry trends, and will present innovative solutions for the global manufacturing sector. In our board, everyone is focusing on the topic of climate change because the customers are asking for it. As the CEO of Deutsche Messe AG, I bear the responsibility to answer all the questions on sustainability for my customers as well. For example, hydrogen can be produced industrially, with windmills, solar panels, etc and used for mobility, and in steel factories. Theoretically, hydrogen is a solution, but practically there are so many questions to answer like where to produce it, how to transport it, what will be the price, how to produce competitive steel with hydrogen and how to make a climatic neutral production and then to answer these questions you have to find the 400 exhibitors, who can provide potential solutions. So you



can find these kinds of trends at the trade fair, which are driven by customer needs.

Sustainability, including circularity, has become a necessity for manufacturers. What kind of solutions can be seen at the Hannover Messe for the same?

Hannover Messe 2023 will showcase a lot of applications; for example, the energy part of the exhibition will help you to understand where to use energy. There are a lot of systems to control energy consumption and different possibilities to make it in better way. Today, one

can run a factory with 100 per cent renewable energy, but then on a cloudy, non-windy day, you need to change the energy system to run your factory. This is going to happen more in the coming years.

At the exhibition, one can find a lot of solutions and applications to help save energy and run factories depending on the demand of energy and type of energy resources used.

There will be a lot of participation and visitors from other countries at the event. What kinds of production technologies and solutions they can look at to take back home?

Everyone who is visiting Hannover Messe is looking for innovations to be more competitive. In Germany, we are facing the problem of lack of availability of blue-collar workers and engineers. Thus, to operate a factory efficiently in the country, we have to adopt advanced automated solutions and robotics. Perhaps in India, the situation will be different with large number of young population available for work in industries. An Indian producer might look for some other

At the exhibition, one can find a lot of solutions and applications to help save energy and run factories depending on the demand of energy. There has been a rise in the number of Indian visitors who are here to find business partners, latest technologies, big industrial companies, and a lot of innovations.

innovations like sensors for quality improvement.

So, the solutions to look at vary accordingly to the problem. The key idea is to present all the solutions and innovations on a platform at one place and time. If you have a problem at hand, you can invest a couple of days at Hannover Messe to evaluate all the available solutions to mitigate your challenge and then, at the end of the day, pick the best and the most trustful one for you. This is how the exhibition is going to function.

India has a unique ability to provide contract manufacturing solutions for European

companies. Is that something that you can probably address through Hannover Messe?

At Hannover Messe, key decision makers - business partners and top management of companies, investors, big companies, etc - will be available presenting opportunities for participants (exhibitors as well as visitors) to discuss collaborations, including contract manufacturing possibilities.

How is the participation of India this year? Has there been a rise in participation from India?

For many years, India has been an important exhibitor country for us. Yes, there are Indian exhibitors to find markets for themselves and present their products. Indian visitors are here to find business partners, latest technologies, big industrial companies, and a lot of innovations. There has been a rise in the number of participants compared to the last year and we are happy with the rising Indian participation.



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NEWS SNIPPET

Hannover Mess: A leading platform for green hydrogen and fuel cells development

At the upcoming trade fair Hannover Messe, around 500 companies will be presenting their solutions for hydrogen production, transport, storage and consumption. The EU Commission plans to install electrolyzers with a minimum of 40 gigawatts of power by 2030 in order to gradually produce 10 million tonnes of green hydrogen, which presents a sizable opportunity for all of these companies.

The hydrogen economy is international, leading to a plethora of new, innovative companies worldwide. The exhibitor Maximator Hydrogen, a manufacturer of hydrogen filling stations, has been growing for years and is aiming for sales of 50 million euros – in its fifth business year. Construction is now taking place, and production space is constantly growing. The company's backlog of orders now totals more than 100 million euros.

Approximately 300 exhibitors, including well-known companies such as Bosch, Iberdrola, Schaeffler, Siemens, Linde, and Emerson, will be displaying their products at the Hydrogen + Fuel Cells EUROPE, a special display at Hannover Messe.



The hydrogen industry thinks internationally and will be showcased primarily in Hall 13, in an area covering approximately 8,000 square metres of display space. Many exhibitors hail from countries other than Germany and Europe, including China, Japan, South Korea, the United States, and Canada.

Norway is a significant partner for German and European future goals, and it is well-represented at the event. Equinor and RWE, a German company, recently signed an agreement to manufacture hydrogen in Norway and transport it through the

pipeline to They will also work together to create offshore wind farms. Statkraft and Germany's HH2E presented their agreements with the Norway-based NEL company to purchase electrolyzers for hydrogen factories in several European countries.

With a rising tendency, Europe now generates and uses over 80 million tonnes of hydrogen annually. The EU Commission intends to switch from grey hydrogen to green hydrogen by 2030 as grey hydrogen is derived from fossil fuels. With only seven more years to go, it will take numerous additional electrolyzers to attain the goal.

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Critical Manufacturing to display advanced MES system

Portugal headquartered, Critical Manufacturing, at Hannover Messe will highlight to visitors how its MES empowers manufacturers with advanced capabilities to drive innovation, increase connectivity, and promote digital transformation with Industry 4.0-ready out-of-the-box modules.

The landscape for manufacturing execution system (MES) has changed dramatically over the past few years. Historically, MES has been cumbersome, leaving manufacturers unable to embrace new advancements because of the difficulty of evolving and upgrading the system. Today, however, these platforms offer tremendous flexibility, scalability and ease of use. To enable easy deployment across multiple sites and ensure the system remains 'future ready', Critical Manufacturing, a subsidiary of ASMPT, provides the most modern, flexible and configurable manufacturing execution system (MES). Its MES employs templates, container orchestration, and DevOps (a set of practices that combines software development and IT operations). The platform runs effectively on any hardware or software configuration and can be hosted on-premises, on any cloud, or on any hybrid option. The low code system is inherently scalable and customisable, new functionality can be quickly deployed, and new sites added without large cost overheads.

At the trade fair, Hannover Messe the company is exhibiting its advanced capabilities with its products and solutions. A highly innovative solution, the Critical Manufacturing MES facilitates the adoption of Industry 4.0 manufacturing technologies with an advanced IoT platform. It provides complete, real-time visibility across global manufacturing operations, including the wider supply chain. It is designed for complete integration with new devices and legacy systems, enabling manufacturers to navigate the pathway to smart manufacturing at a pace that suits their business model. Features include end-to-end material traceability, bill of material (BOM) variation management, powerful data management tools, advanced analytics, and a complete digital twin of the shop floor to ensure total visibility of operations and performance against key performance indicators (KPIs).

Francisco Almada Lobo, Chief Executive Officer and Co-founder, of Critical Manufacturing, commented,

The most modern, flexible and configurable MES employs templates, container orchestration, and DevOps (a set of practices that combines software development and IT operations).



"This technology offers manufacturers of complex and sophisticated products tremendous opportunities to increase production efficiency, enhance quality, and use data to provide deep insights into manufacturing processes and best practices while offering new levels of agility to respond to changing market demands. It is difficult to explain in words just how advanced and easy this system is which is why we are encouraging visitors to Hannover Messe to visit our stand and see for them."

Critical Manufacturing will be at the Digital Ecosystems exhibition area, Hall 15, C13 at Hannover Fairground. On the stand, visitors will have the opportunity to discover more about the Critical Manufacturing MES with a conference space where partners and customers can learn and share experiences and insights about the MES.

The stand will incorporate a robotic arm, which will simulate an assembly station, allowing visitors to try the MES themselves by assembling a product. This will demonstrate the ease of use of the system covering work instructions, quality aspects, and intuitive dashboards. Additionally, Critical Manufacturing is one of the silver sponsors of the 15th International MES Conference, which will highlight the potential of MES for resilient manufacturing as a solution to disrupted supply chains, skills gaps and high energy prices.

"The way our MES is designed, with modules, containers and DevOps, means we are able to continually enhance its functionality. It provides 'best in class' performance and sets a new benchmark in ease of use," said Almada Lobo.



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Dürr, iTAC develops a system to bundle digital factory functions

The Dürr Group comes together with its subsidiary iTAC Software to presents a complete, single source solution for production planning and control at the Hannover Messe trade fair at their booth. The Modular MOM system bundles all functional areas of the digital factory together.

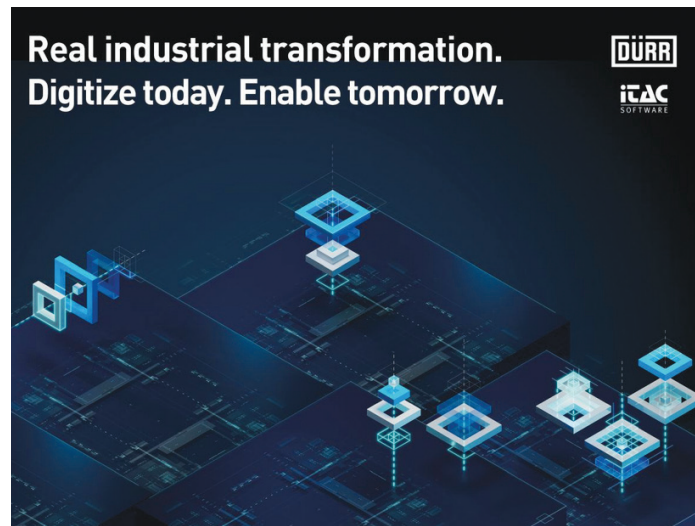
To make a smart factory a reality, machines and systems from all sub-areas must communicate with each other and end-to-end digitalisation must be achieved. The Dürr Group, one of the world's leading mechanical and plant engineering firms together with its subsidiary company, iTAC Software developed a modular solution for manufacturing planning, execution, control, monitoring, optimisation, and predictive analysis. Dürr uses its manufacturing and digitalisation knowledge to combine hardware and software while iTAC Software is a solution provider of Manufacturing Execution Systems (MES). The two companies will display the functioning of newly developed Manufacturing Operations Management (MOM) system at the Hannover Messe trade fair in hall 15, booth E34.

There are three central superordinate control components in every digital factory: MES (Manufacturing Execution System) controls and monitors production, SCADA (Supervisory Control and Data Acquisition) collects and analyses data, and HMI (Human Machine Interface) visualises production and process flow. Until now, these components, for example, the MES sub-segment, were mostly designed as stand-alone solutions. Dürr and iTAC have combined their competencies and merged the functional scopes of MES, SCADA, and HMI into a uniform MOM architecture.

Instead of monolithic individual solutions, the new MOM system relies on micro-services that provide functionality as required. The solution enables a high level of flexibility and consistency and offers many interfaces in terms of interoperability. This was made possible by combining Dürr's DXQcontrol product family with iTAC's iTAC.MOM.Suite. Manufacturing companies, whether manufacturers or suppliers, thus receive a future-proof industrial digitalisation solution with interoperable modules that cover all smart factory functionalities.

Microservices architecture for agile manufacturing

The MOM architecture from Dürr and iTAC is a modular approach in comparison to earlier MES solutions, which were monolithically constructed, meaning that a single software product covered much functionality such as data acquisition or logistics.



Multiple microservices act and communicate with each other while performing their tasks independently. Microservices, as distinct to monolithic solutions, provide open interfaces for communication with other services and self-sufficient data storage for flexible deployment. Only necessary modules are installed, making operation more sustainable, as fewer servers are required. The modular design of the MOM architecture increases plant availability since it is less prone to errors than monolithic architectures.

Variable availability: Cloud, on-site, or hybrid

Microservices have the additional benefit of being flexible in their installation on IIoT platforms in the cloud, on-site (on-premises), or in hybrid factory deployments. Clients can employ particular cloud services while implementing other features on-site, for instance, if they have concerns about operational costs or production stability. The hybrid solution is particularly advantageous for large data volumes in the terabyte range. Processing some of the data locally ("on-edge"), that is, within the local environment, saves time, costs, and energy because not all data sets have to be transferred to the cloud/IIoT platform via many transactions. Moreover, local processing provides the necessary speed for real-time control of manufacturing processes.

Dürr will present its ISO 50001-certified DXQenergy.management software that maps media consumptions throughout the production line, systematically detects consumption anomalies, and consequently identifies potential savings at Hannover Messe.

Sustainable Production Management

Dürr and its subsidiaries iTAC Software AG and Dualis GmbH IT Solution will present other industry development trends in addition to the MOM presentation at the Hannover Messe trade fair. Another focus is on sustainable and energy efficient production management. Dürr will present its ISO 50001-certified DXQenergy.management software that maps media consumptions throughout the production line, systematically detects consumption anomalies, and consequently identifies potential savings. The GANTTPLAN planning tool from Dualis monitors energy costs incurred during production planning.

Manufacturing Analytics and Intelligence

Dürr and iTAC's analysis tools use artificial intelligence to improve production quality and availability. They can act as MOM system components. The products evaluate production and quality data, which can detect possible defects or impending wear but also use machine learning to make forecasts. Prevention and prediction services and the integration of edge technologies result in optimisation, increased added value, and data sovereignty.

Advanced Planning and Scheduling (APS)

The Group offers intelligent tools from Dürr, iTAC, and DUALIS as an overall solution for the APS field. These tools plan and optimise production order execution, consider available resources and capacities as well as material requirements and necessary maintenance intervals. The solution has many benefits, such as short delivery times, high delivery reliability, and permanent cost optimisation.

Dürr, iTAC, and DUALIS together at Hannover Messe

More than 4,000 exhibitors will present their solutions on current trends at the major industrial trade fair in Hanover, Germany, where the digitalisation of production plays a central role. Dürr, iTAC, and DUALIS will present end-to-end solutions for a smart factory at their joint booth (hall 15, booth E34) in line with the theme "Real industrial transformation. Digitise today. Enable tomorrow."



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Fraunhofer IMM develops energy supply system based on ammonia

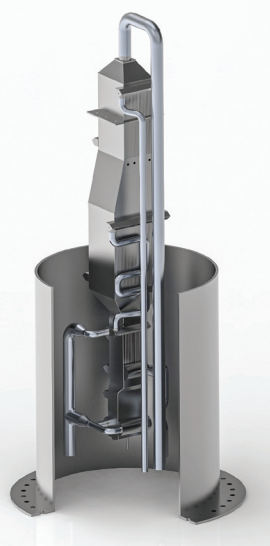
In the future, ammonia could play a decisive role in the transition from fossil fuels to climate-friendly alternatives — as long as it is produced from green hydrogen, for example, using renewable energy sources. Ammonia is easy to store and transport. Researchers at the Fraunhofer Institute for Microengineering and Microsystems (IMM) are developing ammonia-based systems for a mobile, decentralised energy supply in the infrastructure, transportation and industry sectors.

Implementing the energy transition is a major challenge for industries around the world. Industries such as transport, logistics and production, use a significant amount of fossil fuels and all the energy requirements in these sectors are mainly met by fossil fuels. But the world now is looking for a replacement to it with regenerative electricity or regenerative fuels. In the same league, a German organisation Fraunhofer Institute for Microengineering and Microsystems (IMM) in Mainz is working to develop ammonia-based systems for energy supply. The institute works in the fields of energy and chemical technology, and analysis systems and sensor. It is an integral part of the German research and development community and a recognised project partner for micro system technology beyond European borders. The researchers at the institute are working on the mobile, decentralised provision and storage of electrical energy from sustainable sources.

Dr Gunther Kolb, Head of Energy division and Deputy Institute Director at Fraunhofer IMM, told, "An alternative to fossil fuels is power-to-X fuels, which are synthesised from electrolysis-based hydrogen. The most important power-to-X fuel is currently hydrogen itself. However, before hydrogen can be utilised as an energy source on a widespread basis, there are still some considerable hurdles that need to be overcome in terms of its transportation and storage. These include either high space requirements for its storage or other energetically unfavorable conditions. Ammonia (NH₃) could become an alternative solution to allow the required hydrogen to be stored and transported with ease."

Advantages of ammonia over hydrogen

To date, ammonia has primarily been known as a source material for agricultural fertilisers. However, it is also a high-quality energy carrier, particularly as a



AMMONPAKTOR reactor prototype

storage medium for hydrogen. "Because ammonia can be liquefied at a moderate temperature of -33°C, its volumetric hydrogen content is significantly higher than that of compressed hydrogen at 700 bar. In comparison to hydrogen, liquefied ammonia makes it easier to transport large volumes to wherever it is needed. Because hydrogen produced from ammonia does not contain any carbon oxides or methane, it is also free from greenhouse gases," mentioned Kolb.

Green cracked gas as a fuel gas in brick production

Hydrogen can be used as an energy source on-site for industrial activities on a large scale and on a decentralised basis in the logistics industry by converting it into ammonia. Ammonia is almost incombustible in the air, hence it is not a good choice for energy production

by burning.

"In a cracking reactor ammonia can be split into nitrogen and hydrogen when suitable catalysts are applied. A mixture of ammonia, hydrogen and nitrogen is suited for homogeneous combustion and can be used as an energy source, known as 'Spaltgas'," said Kolb. As part of the Spaltgas project, researchers at Fraunhofer IMM and their project partners are developing a combustion technology for this gas mixture that will be used in the brick firing process. In this way, ammonia from hydrogen produced via electrolysis can be used to make the entire brick manufacturing process chain carbon dioxide-free. The Spaltgas project is funded by the German Federal Ministry of Education and Research (BMBF) as part of the "KlimPro-Industrie" program.

Ammonia, a hydrogen source for fuel cell drives

Ammonia can also be used to fuel land vehicles using hydrogen. With decentralised plants, it can be turned into hydrogen right at the filling station. As a

result, there is no longer a need to transport compressed and liquefied hydrogen as it is an expensive and complicated process. In order to accomplish this, Fraunhofer IMM is developing a cracking reactor based on innovative catalyst technology and micro-structured reactor technology. In this reactor, pure hydrogen is produced from ammonia through cracking and subsequent purification, which is then injected into PEM fuel cells.

"By utilising the off-gas of the pressure swing adsorption as energy source for the cracking process, we are able to achieve an efficiency of 90 per cent in comparison to 70 per cent which are achieved when conventional technologies are applied. Additionally, our AMMONPAKTOR reactor is much more compact than conventional reactors, meaning that we have achieved a 90 per cent size reduction. This is particularly important for mobile and space-constrained applications. Finally, our technology has a lower carbon footprint in comparison to electrically heated reactor concepts because we use the exhaust gases from the cracking process to generate the energy required and no other sources," explained Kolb.

The AMMONPAKTOR reactor from Fraunhofer IMM, was financed by the State of Rhineland-Palatinate using ERDF (European Regional Development Fund) funds and is also the most efficient reactor on an international

scale. Even in its first generation, the cracking reactor achieved the second-highest specific hydrogen production rate ever published owing to the unique technology of Fraunhofer IMM. The second-generation cracking reactor, which is currently in the manufacturing process and has a throughput of 25 kg/hour of ammonia, produces 70 kilos of purified hydrogen per day.

Ammonia is of interest for maritime propulsion systems in addition to supplying hydrogen to land vehicles because in this industry, it has been difficult to meet CO₂ reduction goals using conventional fuels, and there are numerous applications where compressed or liquefied hydrogen cannot be used as an alternative. In the same way as with Spaltgas reactors, partially cracked ammonia can be combusted in (ship) engines. Moreover, Fraunhofer IMM is working with 13 European consortium partners as part of the ShipFC project to create the world's first ammonia-based fuel cell system for maritime applications.

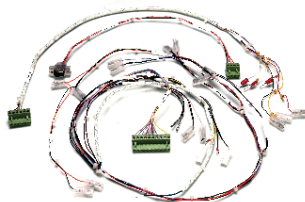
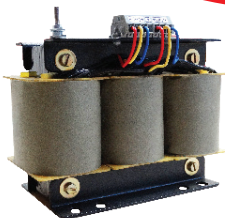
At Hannover Messe 2023, Fraunhofer IMM will be presenting its application-oriented developments for fuel processing from all conventional and renewable fuels at the Hanover Exhibition Center.

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Igus will present affordable digital innovations at Hannover Messe

Motion plastics developer, igus is stepping up the pace of low cost automation and making entry into automation easier and affordable. It presents ReBeLmini cobot, RBTXperience software and virtual iguversum at Hannover Messe 2023.



The Hannover Messe has always been an important meeting place for the latest developments in the industry. To do the justice to the tradition, igus is also presenting digital products and solutions at the event that will help companies improve their products and cut costs. Igus's low cost automation cobots, software, and virtual parallel worlds ensure that even robotics novices can get started with inexpensive automation in a very short time. The hardware starting point is an igus plastic robot, such as the new ReBeLmini, real plug-and-play cobot which comes at € 3,999, including control software and power supply. The robot works with five axes, has a reach of 310 mm, moves loads of up to 0.5 kg, and achieves seven picks per minute with a repeatability of +/- 1 mm. The ReBeLmini is particularly suitable for use in restricted space such as those in test automation or camera quality control, and can also be used overhead.

Next-level engineering with digital tools

Newly developed igus digital tools help companies configure, integrate, and control their individual robotics hardware quickly and easily. According to the 'Play before you pay' idea, the new RBTXperience software enables users to combine and test cameras, grippers, and robots, but also machine frames and conveyor belts, in with 3D model – as simply as in a

computer game. The components and superstructures can be dragged and dropped however the designer wishes, always with a compatibility guarantee and an instant price. CAD files can be downloaded to any planning software with a single click.

"At the start of the Hannover Messe, we will save to our database every automation solution configured in the online tool and make them available to other customers as a design template. This gives us a huge design community," said Alexander Mühlens, Head of Low Cost Automation Business Unit, igus. More than 300 solutions are already available on the RBTX online marketplace as a source of inspiration for immediate imitation, 95 per cent of which have an investment cost of less than €12,000. But igus simplifies not only the configuration, but also the control of low cost automation. igus offers intuitive software for defining ReBeL robot movement sequences within 30 to 60 minutes – even without programming knowledge. The new AnyApp software will also be presented at

The ReBeLmini is particularly suitable for use in restricted space such as those in test automation or camera quality control, and can also be used overhead.

Extended reality (XR) technologies such as virtual reality (VR) and augmented reality (AR) allow automation solutions to be planned, controlled and tested in virtual space. This enables employees to remotely access hazardous or awkward work environments without physically being on site.

Hannover Messe 2023. It allows this intuitive programming for other robots as well. AnyApp is particularly well-suited to companies that combine robots from different manufacturers into automation solutions, but do not want to learn multiple control software packages.

The iguversum: Playfully achieve top engineering performance in the virtual world

Another development step is the iguversum, which can be experienced at the new 'igus digital' stand in Hall 17. Users from all over the world can interact and collaborate virtually on projects without being physically present. The iguversum is a collaboration world and a digital tool that can support companies in all technical developments. Extended reality (XR) technologies such as virtual reality (VR) and augmented reality (AR) allow

automation solutions to be planned, controlled and tested in virtual space. This enables employees to remotely access hazardous or awkward work environments without physically being on site.

This gives companies the opportunity to make their working environment safer, generating greater employee satisfaction and motivation and making it easier to recruit new specialists. "In the future, we will see how people working collaboratively in the metaverse and controlling robots remotely from virtual worlds. This will change the way we work together," said Marco Thull, Senior Marketing Activist for igus GmbH. Igus will offer companies digital tools such as simulations, forecasts and data analysis, going beyond what low cost automation can do to make their processes faster and cheaper.

"New technology is never ending. We must continue to focus on these questions: What does the customer get out of it? Is it helpful or can we get rid of it? The interaction of inexpensive hardware, software and XR in connection with artificial intelligence will enable customers to continuously improve their machines and systems and quickly adapt them to the needs of their customers – an enormous competitive advantage," added Thull.



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NEWS SNIPPET

Igus to organise awards ceremony at the Hannover Messe presenting offers prizes of up to €5,000

Small, corrosion-free and made of plastic: the plain bearing. An unimposing machine element, it is rarely in the limelight, so a joint initiative started by igus, the motion plastics specialist, awards up to € 5,000 to the most exciting and creative plain bearing projects every two years. This year, 480 entries from 36 countries were received.

A miniature lawnmower the size of a puppy, a fully automated robotic miniature kitchen, a foldable dog car step and a 24/7 beer bottling plant are just four of the 480 applications for the 11th manus competition. "We received a colourful variety of entries again this year - from 36 countries around the world," said Tobias Vogel, CEO of Plain Bearings and Linear Technology, igus and a member of the manus award panel of judges. "The competition shows us how wide the range of applications for plain bearings can be and what problems their particular



specifications solve." From highly hygienic areas in medical technology to very dirty heavy-duty applications - there are a lot of different requirements for the plain bearing. The panel of judges consists of experts from research, business and the specialist press. The winners will be selected based on five categories - idea, plain bearing function, savings, effect and differentiation. The final placing decision was done by mid-March, 2023.

Due to Corona, the last manus award in 2021 was presented as a digital live event to which the international specialist press and all manus award participants were invited. "We are very much looking forward to presenting the trophies again in 2023 as part of the Hannover Messe at the igus trade show stand on April 19, and to celebrating the 11th manus award with the winners," said Vogel.

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Schmersal to showcase safety and automation developments

The machine safety products expert, Schmersal will be attending the Hannover Messe to present its latest innovations. The company has put the focus this year on automation and safety solutions for intralogistics as well as for packaging and food processing machines.

The growing volume of online trade is a key driver for developments in intralogistics, which calls for increasing process automation, and efficient and safe plant technology. Using a model that depicts different process steps and technologies, including filling, conveyor and palletising technology as well as robotics, The Schmersal Group, at the Hannover Messe, will be demonstrating components and systems that not only contribute to occupational safety, but meets the stringent requirements of intralogistics and packaging industry in terms of fail-safe operation and plant productivity. The Schmersal Group offers one of world's largest product portfolio of safety switchgear devices and systems for personal and machine protection to its customer.

Intelligent solenoid interlocks

A robot carrying out palletisation operations is safeguarded on the Schmersal stand with solenoid interlocks that keep guard doors locked until hazardous movements have come to a halt. Intelligent safety components, such as the AZM201 solenoid interlock, help to minimise downtime with the help of comprehensive diagnosis functions.

New Time-of-Flight procedure

Schmersal will be demonstrating a new technology at Hannover Messe for the first time – a technology in which the position and stacking height of boxes/crates palletised by robots is monitored by a ToF camera. The Time-of-Flight (ToF) procedure can be used to create a 3D image of the scene that is available as a point cloud. The scene can then be used to determine the positions and dimensions of objects. Software that can be used to define and monitor three-dimensional zones in space opens up a wide range of automation solutions in logistics and production-line production.

Schmersal will be demonstrating components and systems that not only contribute to occupational safety, but meets the stringent requirements of intralogistics and packaging industry in terms of fail-safe operation and plant productivity.



ToF cameras enable efficient, real-time data evaluation, such as when carrying out measurement tasks in fill level monitoring or volume determination of piece goods.

New magnet track sensor box

Electric monorail conveyors are used to transport work-pieces, tools and other purchased parts in almost every industry. Schmersal will be showcasing a solution for precisely this application at Hannover Messe: the SSB-R sensor box is used to define route sections for speed regulation for electric monorail conveyors in a manner that is cost efficient and maintenance free. It also allows park positions to be approached with careful accuracy.

New command and signalling devices in hygienic design

The new H series from Schmersal will be showcased at Hannover Messe as a full range of command and signalling devices for hygiene-sensitive applications, particularly in food processing. **IPF**



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Igus develops world's first cable suitable for SEW-EURODRIVE

The motion plastics developer comes up with another innovative solution and this time in cable operations. The chainflex CFSPECIAL.192 hybrid cable for hanging travels of up to 50 metres and is the only cable on the market for hanging applications in e-chains, suitable for SEW-EURODRIVE's MOVILINK DDI.

With 1,354 cable types for data, bus and hybrid systems, control systems and drives, igus offers an extensive range of cables for moving applications in a wide variety of industries. Igus has developed the chainflex CFSPECIAL cable series for areas of application with special requirements. The CFSPECIAL.192 is new to the product range. It is the first chainflex hybrid cable for hanging applications, suitable for SEW-EURODRIVE's MOVILINK DDI drive technology. Machines have to work reliably around the clock in such areas as material handling. Warehouses are getting bigger, and increasing mast heights mean high demands on the cables. To ensure trouble-free operation even in demanding hanging applications, igus developed the hybrid cable. A high-tensile aramid support element in the cable jacket allows mast heights five times that of standard cables.

"Hybrid technology is becoming more and more popular, so demand for new single-cable solutions is also growing," said Rainer Rössel, Head of chainflex Cables Business Unit, igus. "Especially in the material handling field, many companies use SEW-EURODRIVE's MOVILINK DDI digital motor interface, for which we already offer various cables. Hanging applications, however, such as stacker cranes, whose masts can be very high, place special demands on cables. The CFSPECIAL.192 is our newly developed cable solution for stroke heights of up to 50 metres."

More than 4,200 newtons of tensile force

"The challenge with hanging applications is that you need a cable that is suitable for chains and can absorb enough tensile force that it does not break even over great distances and stroke heights," explained Christian Strauch, Industry Manager Material Handling, igus. The cable has to bear its own weight - 15 newtons per square millimetre of main core according to the standard. The cross section can be enlarged, but that



does not automatically mean more cable length because the coefficient of friction also increases. "To solve this problem, we have incorporated a high-tensile aramid braid into the CFSPECIAL.192's PUR outer jacket. Tests in our in-house laboratory show that the tensile strength is 500 per cent higher than that of a standard cable for MOVILINK DDI," said Rössel. "Our new cable achieves a tensile force of over 4,200 newtons, making it ideal for vertical applications, such as storage and retrieval units."

Lower costs and guaranteed longer service life

The new igus hybrid cable reduces costs for customers by eliminating the need for a second cable and time-consuming cable bracing in the energy chain. At the same time, the single-cable solution requires less installation space and reduces the weight the system must bear. In addition to lower costs, users benefit from the much longer cable service life in hanging applications. All igus cables are subjected to numerous tests to calculate the service life of each cable - and the online tool makes it very easy. "That is why we are the only supplier in the world to offer a 36-month guarantee on all our chainflex cables," said Rössel. "This way, users benefit from a durable solution that ensures reliable, trouble-free operation even at great heights and over long distances."



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Chainflex CFSPECIAL cable series is the first chainflex hybrid cable for hanging applications, suitable for SEW-EURODRIVE's MOVILINK DDI drive technology.

AI in manufacturing to be under spotlight at Hannover Messe 2023

The trade fair, Hannover Messe 2023 will have a special focus on Artificial Intelligence, Industry 4.0, Carbon Neutral Products, and Hydrogen and Fuel cells. Under the theme 'AI in manufacturing', exhibitors will be focusing on the role of AI in simulation, testing and product development. Innovations in generative AI will also take up the spaces in the exhibition.

The only way for industrial enterprises to remain competitive in the coming years is by linking Artificial Intelligence (AI) to their process automation, warns Professor, Dr Sepp Hochreiter of the JKU Linz University in Austria. "Don't screw this one up," he said in a message to the industry. But AI in industry or manufacturing does in fact differ from many other sectors and this goes beyond the issue of mere data acquisition and processing.

This year, the world's premier trade fair, Hannover Messe is keeping the topic 'AI in manufacturing' under the spotlight. The event is organised by Deutsche Messe AG and is held at the Hanover Fairground in Hanover, Germany. Along with the subject of process optimisation, exhibitors will be focusing on the role of AI in simulation, testing and product development. Generative AI is also making major inroads into the industry. The upcoming tradeshow will be offering special guided tours, a dedicated discussion format and numerous company exhibits featuring AI tools and use cases – from robotics to production cells.

Its lead theme, 'Industrial Transformation – Making the Difference' unites the display sectors of automation, motion and drives, digital ecosystems, energy solutions, engineered parts and solutions, future hub, compressed air and vacuum and global business and markets. The exhibition program is complemented by a series of conferences and forums.

On the second day of the show, the Monolith AI firm will present its solution for simulation in mechanical engineering as part of the Industrial AI event on the Industrial Transformation Stage in Hall 3. Monolith AI's approach goes even further than the booming simulation industry. Every simulation performed develops a model because the creators rely on real-time data. This means mechanical engineering could save on numerous testing procedures. In addition, AI makes suggestions to developers about their products, based on real-time data. This England-based firm has some very ambitious goals: By 2026, they aim to reduce the product development time of 100,000 engineers by 50 per cent. At the same event, machine manufacturer Hawe Hydraulik will report on how it is using reinforcement learning and then implementing the technology in its processes.



Generative AI, for example in the form of the DALL-E tool, will also change the face of industrial product development, with the designer receiving support from an intelligent agent. Festo, the exhibiting company, has been working in the area of reinforcement learning for manufacturing processes for several years. The next step involves the use of generative algorithms for product development. Open AI recently published 3D models for DALL-E. The challenge in the industry, apart from the 3D challenge, is that the products must also be moveable. In addition to Festo, which is also bringing its new Cobot, Autodesk is also addressing this issue.

The challenge of integrating machine learning into processes is also being addressed by process control suppliers – Siemens is moreover focusing on providing ML Ops, in which engineers provide reliable machine learning models for efficient production and continually maintain them. Siemens will also be providing insight into an AI project at a customer's site at the Industrial AI event on the second day of the fair.

In addition, visitors will find AI tools and use cases to draw inspiration on the tradeshow floor. Omron will present a cell-line control system, while Beckhoff will showcase vision solutions and Dürr will feature its DXQ analyse product family. The promise is that this enables the comprehensive logging of all available process data to detect potential product quality defects or emerging equipment wears in real-time. The system uses data that is condensed at a higher level to conclude the



functionality of individual steps along the value chain, based on documented product quality.

Today, prototype scans often be developed quickly, but the challenge in industrial AI projects –over and

above the acquisition and the processing of data – usually lies in integrating the application into a plant, cell, conveyor system or production line. In other words, AI plug-and-play is rare. Hannover Messe, 2023 presents the ideal networking hub. This is where AI developers and software engineers get together with users to jointly develop industrial-grade AI products or processes. Whereas in the past, the focus was on use cases in which errors or anomalies were detected or prognostications were made, the industry in 2023 is focusing on the optimisation of processes and the use of AI methods for simulation, testing and product development. **IPF**



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NEWS SNIPPET

Andhra Pradesh receives Rs 13 lakh cr investment during Global Investors Summit

Andhra Pradesh hosted APGIS (Andhra Pradesh Global Investors Summit), 2023 on March 3 and 4 in Visakhapatnam with a high spirit. The event highlighted the state's advantages to global business leaders and attended by several dignitaries and industry leaders, who shared their insights on the state's potential for growth and development.

The state has received 340 investment proposals with investment of about Rs13 lakh crore, providing employment to almost six lakh people across 20 sectors distributed all along the state. Y S Jagan Mohan Reddy, Chief Minister, Andhra Pradesh, said, "Through this summit, we would like to communicate to the domestic and international community that you are important to us. We are sharing the opportunities that the state has to offer the emphasis is on healthy competition and exploring long-term partnerships."

Andhra Pradesh is India's gateway to the southeast with its 974 km long coastline, the second longest in the country, six existing ports, and four upcoming ports. It has also emerged as the fastest-growing state in India, as per the number released so far, with double-digit growth of 11.43 per cent in 2021-22. APGIS is taking place in 2023 that is an important year for India mentioned Reddy in his speech. "Our country is playing a key role as the leader of G-20. This throws up great opportunities for India in terms of attracting global investment and technology," he added assuring the delegates that the state is prepared to be at the forefront of emerging growth opportunities.

Andhra Pradesh is blessed with a large renewable energy potential of 82.5 GW. It is one of the very few states in India that has combined potential for solar, wind and pumped storage, he stated. "We have also identified and set aside dedicated land parcels for wind, solar and



L to R: CM Y S Jagan Mohan Reddy with businessman Mukesh Ambani at APGIS

pumped storage projects."

With governance reforms and formulation of investor-friendly policies by the government, the state has emerged on top in terms of ease of doing business for three consecutive years. Consistent improvement in the governance framework to create hassle-free investing is augmented by hard infrastructure. The improvements in the state have been duly recognised and the state has received various awards over the last year alone like, the LEADS award for logistics 2022, the Inertia Award for Energy 2022, the ET award for port-led, and the infrastructure project 2022.

The CM concluded his speech by telling the present dignitaries to enjoy the hospitalities and scenic beauty of the city. "I do hope that you have a wonderful time in our beautiful city of Visakhapatnam, which would be our executive capital as well in the days to come", he said. **IPF**

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Oscar Equipment's forte includes design, development, and manufacture of innovative hydraulic cylinders and equipment for demanding fluid power applications.

Oscar Equipment is an ISO 9001 certified organisation covering diverse activities in precision engineering. Since inception Oscar has been growing steadily and today its range of products command a significant industry presence by sheer dint of product excellence and the efforts of dedicated professionals along with wide experience in specific applications in fluid power.

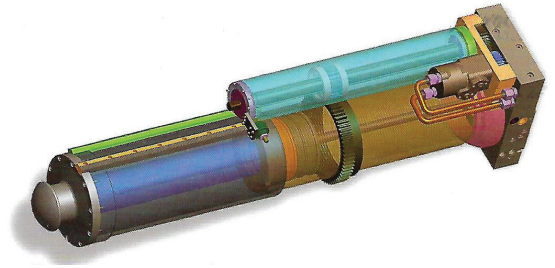
With its highly dedicated workforce, the company caters to the need of various steel plants, mines, railways, nuclear power plants and other heavy industries, as well as earthmoving and construction equipment manufacturers besides special hi-tech projects for strategic applications.

Metallurgical solutions

- ❑ Hydraulic roll force/automatic gauge control hydraulic capsule cylinders for cold rolling, hot rolling and stackel mill applications.
- ❑ Hydraulic cylinders for lift and turn, segment clamping, tundish car, withdrawal and straightener, roll adjustment, cooling bed, walking beam etc. for continuous casting shop.
- ❑ Hydraulic cylinders for wagon tipplers, side arm chargers, stacker and reclaimer etc., for raw material handling system.
- ❑ Hydraulic cylinders for hot strip mill, plate mill, rail and universal beam mill, section mill and bar and rod mill
- ❑ Hydraulic cylinders for pickling line and tandem cold mill applications

Military applications

- ❑ Fabrication and supply of 3-stage pier leg assemblies including fabrication of base plate in 7000 aluminium alloy with synergy pulse MIG welding process for bridging system
- ❑ Fabrication, integration, testing and supply of hydraulic systems and launching mechanism mounted on wheeled vehicles for multi-span bridging systems
- ❑ Manufacturing Jet defector Carrier equipment and installation of the same on military vehicle along with 30 metric ton knuckle boom crane along with complete hydraulic system and collapsible canopy



Forward looking technologies

With the increasing market demand for hydraulic products and need for import substitution, the company is now poised for significant growth by major expansion of the existing hi-tech infrastructure and up-gradation of equipment.

Hydrostatic Vehicle Drive

- ❑ Hydrostatic drive for vehicles, designed with variable capacity pumps, are expensive. Low cost hydrostatic drives with two or more pumps of fixed capacity combine the pump flows with on-off valves, getting three or more different flow capacities by switching.

Hydro-pneumatic Suspension

- ❑ Hydro-pneumatic suspension is a compact cylindrical unit with a gas-charged floating piston and a support piston with a rod and rod eye, to support the static and dynamic loads of a vehicle chassis. The unit also has another separately-operated piston with its own rod and rod eye at the other end that is used to withdraw or engage the wheel. Dynamic load capacity is up to 250 kN, with a working pressure of 35 MPa and gas pre-charge pressure of 16 MPa.

The other products offered include outriggers for heavy vehicles, semi-rotary actuators, and telescopic cylinders. The company's quality assurance wing, equipped with advanced testing equipment, assures exact check at every level including totally equipped metallurgical laboratory and standards room.

IPF

(Communication provided by the management of the company)

IPF presents 3i EXPO and Factories of the Future conference

With India gearing up to be the production hub of the world, the country will have to opt for advanced manufacturing technologies to increase its competitiveness. To make manufacturers future-ready, Industrial Products Finder (IPF) will host 3i EXPO and “Factories of the Future” conference to bring all the key stakeholders of the industry under one roof and initiate the dialogues on the advancements in manufacturing.

The world of technology has brought in a lot of unexplored rooms. The manufacturing industry has not remained an exception to that and came up with the concept of “Smart Manufacturing”. The term wraps up a very broad notion including Artificial Intelligence (AI), Machine Learning (ML), Digitalisation, Robotics and Automation and many more. But the real question is “How will the factories of the future be like?”. To explore the answers to this question, Industrial Products Finder (IPF) – which has been serving the manufacturing sector since its inception in 1972 - is hosting the 2nd edition of 3i EXPO and “Factories of the Future” conference on June 22-23, 2023 at Nehru Centre, Mumbai, India.



Factories over the world are looking to deploy modern manufacturing technologies. Factories of the Future conference, which will be attended by key stakeholders from industry, government and associations, will bring together all the smart manufacturing solutions at one platform from different regions of the world.

As precursor to 3i EXPO, IPF hosted webinars in the past months leading to discussions on achieving manufacturing excellence, shopfloor of the future, and vision 2025 for the manufacturing industry. Eminent speakers from different industrial sectors and companies

Why to exhibit?

- ❑ Exhibitors will have the opportunity to network with government decision-makers, business leaders, and investors from across the region
- ❑ Maximum visibility for your innovative products/technologies and solutions
- ❑ A place to identify trends and issues that will shape the future
- ❑ Generate the greatest number of qualified leads within a short period of time

like **ABB India, Festo India, Hexagon Smart Manufacturing, Wipro Pari, Bosch Engineering and Business Solutions, Godrej & Boyce, Tata Technologies** etc came together at a platform. They strategically discussed the challenges and solutions for the Indian manufacturing sector.

2nd edition brings in more to expect

IPF celebrated its Golden Jubilee Year with the first edition of 3i EXPO in 2022. The three-in-one event comprising Exhibition, Conference and IPF Industry Excellence Awards received an arousing response from the Indian manufacturing sectors with senior representatives from companies like **Emerson, Aditya Birla Group, Reliance Industries, Mitsubishi Electric,**



Schneider Electric, Yokogawa India, etc visiting the event. Exhibiting companies showcased their innovative products and solutions helping the Indian manufacturing sector to gain competitiveness. Some of the exhibitors were IFM Electronic; Robro System; Bohmen Industries; Steam Solutions; Varay Image Runners; Avcon Controls; Subtronics India; Surface Modification Technologies; etc.

Industry associations – such as Automation Industry Association (AIA), Process Plant & Machinery Association of India (PPMAI) etc have extended their support for 3i EXPO. This year, the Factories of the Future conference will offer participants an opportunity to network with government decision-makers, business leaders, buyers and investors from across the region. It will definitely be a place to identify trends and issues that will shape the future factories. Don't miss, be there to witness manufacturing revolution. **IPF**



For more details on Factories of the Future and 3i EXPO, visit <https://3iexpo.com/> or simply scan the QR Code

Alleima inaugurates a new production facility at Mehsana Mill in Gujarat

The global manufacturer and supplier of advanced stainless steels, special alloys, and heating systems, Alleima inaugurated its new Hydraulic and Instrumentation tubing factory on March 15, 2023, at its Mehsana Mill in Gujarat. The new factory will meet the increasing demand for locally manufactured products in India. The Alleima's investment in 2021 has now concluded and is part of a larger growth initiative that Alleima started in 2017.

In 1983, Alleima established its first operation in Pune, India. The company has since increased its operations in India. Today, India is one of Alleima's key geographical regions, and the Mehsana manufacturing facility has since grown in importance. The factory has increased production and availability of premium seamless stainless steel and high alloy tubes as a result of its ongoing expansion and modernization efforts, strengthening service in the area. Now, the inauguration of the important investment will finally take place.

The first phase of this growth initiative began in 2017. It was completed in 2020 when Alleima added a new cold finishing tube manufacturing line mainly for



heat exchanger tubing and other demanding industrial applications. This time, the investment has been divided into two parts, a new Hydraulic and Instrumentation tubing factory and a Heat Exchanger (HX) cold finish Tube Capacity that will be fully completed and operational in 2023.

"The investment aims to capture growth opportunities in the chemical and petrochemical segment. There is also a change towards increased natural gas in the energy mix and a shift towards alternative clean fuels, which present further growth opportunities. The Mehsana Mill is an important facility in our journey towards strengthening our footprint in Asia," said Göran Björkman, President and CEO at Alleima.

IPF

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